

THE QUALITY SYSTEMS HANDBOOK

UNDERSTANDING AND IMPLEMENTING
QUALITY SYSTEMS AND ISO 9000 STANDARDS
WITHIN THE LARGER QUALITY FRAMEWORK

JEFF RYALL AND JOHAN KRUIHOF

The Quality Systems Handbook
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The Quality Systems Handbook

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Other Books by Jeff Ryall and Jo Kruithof:

Quality Thinking - Thinking Quality

Johan Kruithof

Information Australia, 1993

The Quality Standards Handbook

Johan Kruithof & Jeff Ryall

Information Australia, 1994

Second Edition, QI Publishing Company, 1999

The QS-9000 Continuous Improvement Handbook

Jo Kruithof, Frank Mapperson, Jeff Ryall & David Scott

QI Publishing Company, 1997

QS-9000 A Practical Self-Help Guide:

Experiences of Australian Companies

David Scott & Jeff Ryall

NIETL/North Link, 1999

Hidden Gold!

Bill Jarrard and Johan Kruithof

QI Publishing Company, 1999

*Quality is never a problem;
Quality is the solution to your problem!*

Myron Tribus

Foreword

Prof. John Dalrymple

The advent of the international marketplace has highlighted the need for competitiveness in the provision of goods and services. There is a need to address international competition rather than just being the best in the local market. Additionally, the demands of industrial and domestic consumers have increased more rapidly in the past two decades than in the previous two centuries. Thus, for every supplier of goods and services, the requirements and specifications are becoming more and more demanding and their customers are less and less tolerant of failure to achieve the highest levels of performance.

Careful examination of the evidence confirms that the evolution of Standards related to products has contributed to sweeping success of the industrial revolution and played a pivotal role in the overwhelming and increasingly rapid success of international trade in the last two decades. The latter has also benefited significantly from the relaxation of barriers to trade and protectionism, but it is quite clear that its development would have been impossible without the earlier development of Standards. For example, standards for screw-threads enable replacement bolts to be made in Australia for products made elsewhere. As another example, safety standards for electrical goods have enabled consumers to purchase products from other jurisdictions and be assured that these products will conform to the same safety standards as those available locally.

These developments have increased access to goods and services for a much wider range of consumers and contributed to the significant improvements in standards of living and quality of life of people throughout the world. However, this has been achieved at the cost of considerable turbulence in the employment environments, particularly in the developed world. The cost reductions that have brought substantial improvements in accessibility have also placed pressure on logistics and distribution costs and heightened the concentration on the various cost components associated with the provision of goods and services. In the case of goods and services that have a high labour cost component but depend on low skills, mobile companies will continue to migrate successively to lower labour cost locations. As standards of living improve, labour cost competitiveness declines and companies move to their next location.

This is the backdrop to the environment in which modern organizations must compete. In the case of the business enterprise, the competition is now untrammelled by location, and protectionism has been much reduced. The ability to participate in the global markets of today is dependent on the equivalent of qualification for participation in the ‘Olympics’ of the provision of goods and services. Organizations that are not business enterprises need to compete for public funds, donations, or the time and effort of volunteers. Their ability to continue to attract support depends on the perception by the funding source of the efficiency, effectiveness and value-for-money being provided by the organization. The improvements in communications and the globalisation of information accessibility mean that, in many cases, non-business organizations may be subject to comparison and benchmarking against similar organizations on the international stage.

In this context of ever-increasing demands for improved competitiveness in every facet of operations, the potential contribution that quality has to make cannot be underestimated. The history of the development of the ISO 9000 standard is covered in this book. A previous book by these authors covered the earlier version of the standard, which itself was a watershed in the field of quality. The original standard sought to bring together the elements which would contribute to the provision of assurance that goods and services were produced in an appropriately controlled business environment. It replaced a collection of disparate components which contributed to the achievement of quality, but often did not, individually or collectively, constitute a system. The overlay of third party certification removed the need for every customer to inspect every supplier to assure the customer organization that the supplier’s business environment was appropriately controlled.

This new book sets the approach and philosophy of quality in context and demonstrates the relationship between quality failure and waste. This is then linked to the inevitable loss of competitive opportunity that arises for a company which still doesn’t recognise waste for what it is, when it encounters one where significant measures have been taken to reduce waste. In the global market, there is a certain inevitability about the existence of that other, more competitive company!

For the practitioner seeking to make sense of “What do I do now that the 2000 version of ISO 9000 is out?” this book provides a valuable roadmap with which to navigate the changing landscape of the Standard. The useful appendices list the appropriate standards, trace the differences between the 1994 version and the 2000 version and outline the principles underpinning ISO 9001. For the student wishing to study the quality discipline in depth, this book provides a rich source from which to begin the journey towards greater understanding of the role of quality in the organization. For the

manager, the book presents the case for quality and its role in the organization. It links the principles through the implementation and proceeds to Business Excellence Models and Frameworks. In this respect, it provides supportive insights for the manager at every level and to organizations at every stage of their journey of continuous improvement.

The authors are to be commended on the production of a book which combines theory with practice, is equally useful to the manager, the practitioner and the scholar. The presentation is accessible to all levels of reader and the use of mini-cases and the discursive style make the book both useful and relevant, irrespective of where the reader is in the spectrum of knowledge of the quality discipline. It has considerable potential to contribute to knowledge and understanding of quality and competitiveness in the business enterprise and beyond. The extensive use of examples from personal experience provides the reader with confidence that this is the work of experts who have explored theory, implemented the practice and reflected on the inputs and outputs of the processes in which they have been involved. It is particularly gratifying that they are prepared to share that expertise with a wider audience. I am convinced that all who read this book will benefit personally and their organizations will gain from the knowledge and expertise of these seasoned practitioner-scholars of the quality discipline

John F Dalrymple
Computing Devices Professor of Quality Management
Head of the School of Management
RMIT University

About the Authors



Jeff Ryall

Jeff originally qualified as a metallurgist, and following a technical and management career with BHP, Bunge and Email Limited, established Quality Award Partners®. He is one of Australia's leading quality management experts, and over the past ten years has consulted widely in Australia and abroad.

He holds an M.B.A. and Certificate IV in Workplace Training and Assessment, and is recognised by the American Society for Quality (ASQ) as a Certified Quality Engineer. He is a Senior Auditor of quality systems, is a member of the Australian Universities Quality Agency auditor panel and has qualified as a QS-9000 Auditor. He is a Senior Member of ASQ.

Jeff is a practising certification auditor of quality systems. He also teaches in the R.M.I.T. Master of Engineering (Quality) program. He brings a unique breadth and depth of experience to bear through his work with organisations in a broad range of manufacturing and service industries in strategic Quality and process management - including quality system development and certification - within the context of national business excellence principles.



Johan (Jo) Kruithof

After a long career in the sciences and in Information Technology, Jo's keen interest in the people aspects of knowledge and technology have led him to seek opportunities in the fields of writing, speaking, education, facilitation, and consulting. Actively involved in the philosophy and practice of Quality and Continuous Improvement, he is the principal of his own company Quality Insights Pty Ltd.

He has three RMIT Associateships and a Certificate IV in Quality Management Assessment. He holds Memberships of the Quality Society of Australasia, the Australian Institute of Training and Development, and the Australian Institute of Management. He is a Fellow of the Australian Organisation for Quality, an accredited administrator of the Myers-Briggs Type Indicator® and a Member of the Australian Association for Psychological Type.

Jo has assisted a variety of organisations in areas such as practical process improvement, the use of business excellence frameworks, and the development of a continuous improvement environment. His interests extend to the tertiary education sector through his involvement with RMIT University and Swinburne TAFE. He is an accomplished speaker and award-winning writer, with several books and numerous articles to his credit.

Authors' Note

With this book, we have tried to create a truly useful and user-friendly guide to Quality Systems in their broadest sense. We present both the spirit and the value-adding implementation of ISO 9000:2000 and we explain the wider business excellence culture in which standards and systems make the greatest contribution to an organisation's long-term success. More about all of that in the Introduction.

It has been a major effort - so much has changed and there is so much we have learned since we first wrote 'The Quality Standards Handbook' in 1994. We hope we have succeeded in passing on some valuable aspects of our knowledge and experience, as well as our passion for the subject.

When we started collaborating, first on writing projects and later on client assignments, we didn't know each other very well. Our main association had been as fellow members of the Quality professionals community around Melbourne. It took a while to discover and learn to value the differences and the similarities in our personality and thinking preferences, but the end-result has been that we have learned a tremendous lot from each other. So, as far as acknowledgments go, we would like to start by acknowledging each other!

Of course, there have also been many other people who have made valuable contributions in various ways: by making useful suggestions, by being available to toss ideas around, by reading the manuscript and giving value-adding feedback, and by being around when we needed support and encouragement. We particularly would like to thank our spouses, Kris Ryall and Mary Kruithof - our most significant partners in this and all our endeavours. Thanks also to Howard Paul of Standards Australia, for his faith and patience with this book, and for generally being a tremendously positive and encouraging person to work with.

For both of us there is a broad network of people who have offered their friendship, insights and support over the years. We are, in many ways, a product of those relationships. Special personal acknowledgments need to go to...

- Graham Peck - indirectly he is responsible for all Jo's books, as he was the first person to introduce Jo to the world of Quality;
- Neil Redwood - while working in Australia with Lloyd's Register in the late 80's, he introduced Jeff and many others to the real value of Quality systems and the appropriate rigour that is needed;

- John Dalrymple, Chair of the School of Management at RMIT University, for his friendship, insights and Foreword to this book;
- David Scott and Deanne Emmerson, Jeff's colleagues at Quality Award Partners®;
- Bill Jarrard, Jo's 'other' significant colleague, friend and partner in many joint projects;
- Our many clients, through whom we have learned so much. Thank you for your faith and loyalty (and business!) over the years;
- Our numerous other friends, colleagues and acquaintances in the Quality Profession – you know who you are!

We also gratefully acknowledge the co-operation of the Australian Quality Council for permission to use material relating to the Australian Business Excellence Framework (and Norbert Vogel's feedback on the sections concerned), and of Bill Jarrard for permission to quote and adapt sections from the book 'Hidden Gold!'.

We thank all those people who bought copies of our previous books and who gave us their feedback - mostly positive and always helpful. We are very pleased to have the opportunity to present this new book, to point the way forward, until inevitable improvements to the standards force us back to the keyboard once again.

Finally, we would like to dedicate this book to all those who seek to apply Quality principles to Quality systems in the pursuit of business excellence.

A Note on References to the Australian Quality Council and the Australian Business Excellence Framework

References made in this book to the Australian Quality Council (AQC), the Australian Business Excellence Framework (ABEF) and the Australian Business Excellence Awards were valid at the time of going to print. However, at that time there was a suggestion that the way in which the AQC and/or the ABEF are administered may change in 2002.

Please feel free to contact the publishers or the authors if you have difficulties accessing any of these references.

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*"I'm trying to free your mind Neo.
But I can only open the door -
you're the one that has to walk through it."*

From "The Matrix"

Introduction

“Today, systems thinking is a non-negotiable imperative”

Paul Kemp

- In Norway, people are killed when two trains collide because the register of radio phone numbers is not up to date, so the drivers cannot be contacted to warn them of the danger (*The Age*, 6 Jan 2000);
- About one thousand aircraft are grounded due to changes in manufacturing processes of aircraft fuel, leading to a contamination crisis (*The Age*, 15 Jan 2000);
- Unauthorised changes to mixing procedures in a Japanese nuclear plant result in radiation exposure to 49 people, and 310,000 people being trapped in their homes (*The Age*, 7 Oct 1999);
- People are killed in a hospital demolition and in a naval ship fire; in both cases the causes are traced to lack of technical expertise and controls (*The Age*, 21 Jan 2000);
- Confidential medical files are found dumped in suburban Melbourne (*The Age*, 29 Jan 2000);
- After years of concealment of complaints and defects, a Japanese car maker is exposed and faces massive recall costs and penalties (*The Age*, 24 August 2000).
- Mix-ups during blood transfusions are blamed for three deaths (*The Age*, 6 October 2001).

Hardly a day goes by when a scan of the newspapers doesn't reveal examples of disturbing events like these. They point to the ongoing need to exercise effective control of processes and the consequences of failing to do so. The development and maintenance of sound Quality Management Systems goes a long way to preventing loss of control and quality failures - failures which may have disastrous and tragic outcomes.

This book is about Quality Management Systems and about quality in its broadest sense. It explains how to apply quality thinking and quality practices, to create sustainable success in your business, by reducing your risks and improving your bottom-line results.

A Quality Management System is a system for effectively and efficiently managing the processes that deliver products (goods and services) to Customers. It is a central part of an organisation's overall approach to quality. Often there are advantages in having a Quality System which conforms to an agreed standard. It may also be useful to have an independent party validate this, and give you a certificate, so you don't have to keep proving to all and sundry that you have such a system. This book covers all this, and more.

Quality Management Systems are an integral part of the organisational infrastructure. In many enterprises, such systems are well-planned and defined, and meet or exceed industry standards and legal requirements.

At the other end of the scale they may have, like Topsy, 'just grown' and be totally informal. This is a serious concern, because it can be argued that the Quality System is the most critical system within the whole organisation - it is through the operation of this system that the organisation creates value. The accounting concept of 'value added' is a measure of the difference between the sales revenue and the cost of bought-in goods and services and this is, in fact, the value created by people working within the processes of the Quality System. An effective Quality Management System therefore supports and contributes to the profitability of the organisation, through helping these value-adding process work more smoothly and more reliably. If it doesn't, then there is something wrong with the organisation or the system, or both.

Our main objective in this book is to talk about Quality Management Systems: what they are, and how to design, implement and manage them. However, the existence of Quality Systems standards cannot be ignored, nor should it be. The ISO 9000 series of standards is intended to reflect the principles of good management practices. For many people they provide a valuable source of ideas, and a proven model on which to base their Quality Management System design. Consequently, numerous organisations have implemented Quality Management Systems according to these standards, or are in the process of doing so.

Unfortunately, there are many instances where the benefits are hardly discernible, and the maintenance of the system has become a burdensome overhead. Often this results from an inadequate understanding of the spirit

of the standards, of the nature of Quality Management Systems, and of the larger quality context in which they should fit. If Quality Systems are put in place for reasons that have little to do with the organisation's Customer-serving processes, and are not integrated with its strategic objectives, few, if any, benefits will accrue. One of the objectives of this book is to show you how to tap the positive aspects of standardisation and avoid the negatives.

There is another facet to this issue of Quality Systems: certification. Certification is the attainment of a certificate to demonstrate that your Quality Management System complies with a particular standard. In itself, the certificate doesn't make your Quality System any better. Many companies seek certification for marketing reasons, to project their Quality Systems integrity to current or prospective Customers. Others find that the imposed discipline of keeping their certification helps them maintain their Quality Systems. The truth is that, unless certification is understood for what it is and is sought for the right strategic reasons, it will add little or no value. This book offers a practical, common-sense approach to the issue.

Finally, how do we incorporate 'Quality Thinking' into 'Quality Systems'? Clearly, a first step is to understand what Quality Systems are and what they are meant to achieve. Quality Systems are about standardisation, to manage variation in processes. It is important to realise that this standardisation is *not* for the sake of casting things in concrete so that nothing can change. It *is* for the sake of consolidating improvements to processes, procedures and practices that result from an ongoing policy of Continual Improvement of all forms of work. All of this is done with our eyes firmly fixed on the Customer, never losing sight of the fact that what is important to the Customer is important to us. Fundamental to this is the need to apply system resources in areas of risk, and to ensure that compliance to both internal and external requirements is achieved.

Quality systems don't operate in isolation. They need to be integrated with all our other organisational systems. Quality Systems, financial systems, information systems, personnel systems, and all other systems each have their role to play. At the same time they are interlinked with each other and with corporate strategies and values, to best serve the enterprise's particular, unique way of doing business.

When Quality Management Systems are developed with this focus, they are able to support the delivery of intended organisational outcomes - to Customers and other interested parties. They more than pay their way.

As may be clear by now, this book is not a simple do-it-yourself manual to creating Quality Management Systems and having them conform to

standards. Our purpose is to guide you through practical and responsible ways of both thinking about quality systems and implementing them. This includes aspects such as:

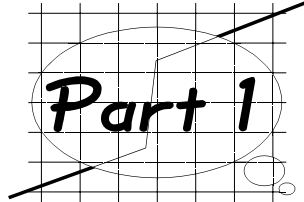
- Proper planning,
- Having the right kind of reasons and objectives,
- Being Customer-oriented,
- Focussing on Continual Improvement,
- Designing and implementing Quality Systems,
- Understanding Quality System Standards,
- Managing the certification process,
- Seeing the bigger Quality picture,
- Embracing emerging trends in management systems practice.

This book presents and explains a thorough, yet practical approach to dealing with these themes and their interconnections.

So, whether you produce goods or services, whether your business is big or small, whether you're well-established or just starting out, this book is about making Quality Systems work for you as a positive force in your quest for Continual Improvement and sustainable business success.

"Give them quality. That's the best kind of advertising."

Milton S Hershey



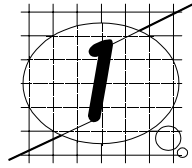
The Ins and Outs of Systems and Standards

“We have become more capable and better because of quality assurance. It does work. Everyone understands and it makes the job easier. We know where we’re heading now; things flow better, they are more orderly and we get it right. It does work. Anyone who says it’s bullshit is wrong. But if you make it too &\$#@!% hard, no one will do it.”*

Peter Brown, Planning Officer at a gear manufacturing company

“If you do what you did yesterday you’ll be beaten. If you do today what others are doing you’ll be competitive. To win you must be doing today what others will be doing tomorrow.”

Rob De Castella,
Australian World Champion Marathon Runner



Standards and Misunderstandings

"To have his path made clear to him is the aspiration of every human being in our beclouded and tempestuous existence."

Joseph Conrad

Early in 1993, Jo conducted a weekend workshop introducing the principles of Quality and Continuous Improvement. One of the attendees was a particularly active participant. Throughout the course, he contributed many examples of how 'old' practices were still firmly entrenched in his company, and of the resistance he was meeting in trying to change things.

Towards the end of the workshop the issue of Quality Management Systems, Quality Standards and Standards Certification arose. As part of this, Jo showed the video 'A Manager's Guide to Quality Certification'. At the end of the film, the names of Companies that had achieved certification to one of the AS 3900 standards at the time when the video was made, scrolled across the screen. For the first time in nearly two days the man was speechless as he saw his own Company's name among them.

This story is one of many we could tell you to illustrate the apparent discrepancies between talking about quality and applying it, as well as the confusion, misunderstanding and misinformation that have characterised the quality scene through to the present day. Our concern, shared by others in the quality field, is that while some organisations are able to point to significant benefits, others, like the workshop participant above, have had less fulfilling experiences.

The two issues which were to a large extent responsible for prompting us to write the original version of this book were a widespread lack of a clear understanding of the various aspects of quality, and the way many companies were rushing into quality standards certification, without regard or understanding of the infrastructure and culture necessary to make it meaningful and beneficial. These issues remain current as we write this new book.

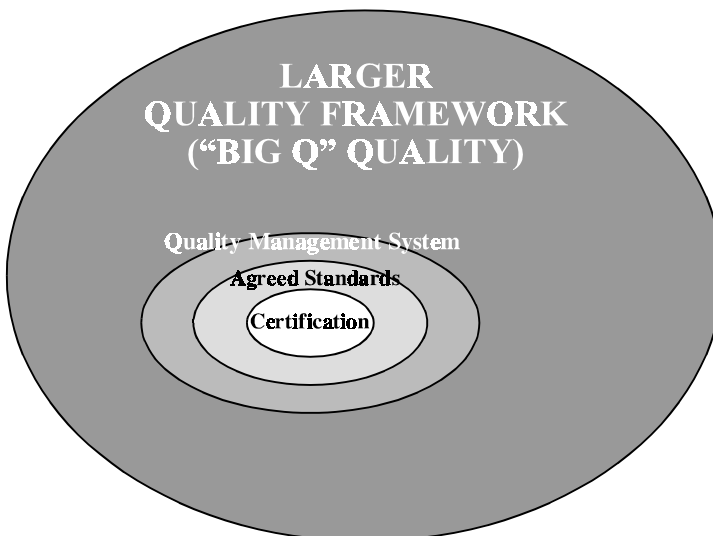
*"Perfection of means and confusion of goals seem
- in my opinion - to characterise our age."*

Albert Einstein

What's in a Name?

Quality Assurance, Total Quality Management (TQM), Quality Management Systems, Quality Systems Standards, Quality Standards Certification, Quality Control - all terms used regularly by many people. Often they are used very loosely, even interchangeably. Everybody thinks they know what they are talking about; sadly, many don't. One of our goals in this book is to dismantle this Tower of Babel, to create a clear understanding of what it all means and how these various approaches and concepts relate to each other. To begin with, let's take a preliminary look at some of the major ideas.

The illustration below shows the progression of concepts: Quality Management Systems are a necessary component of the overall quality framework and management infrastructure of the organisation. The fact that you may make your system conform with an agreed standard is a subset of this - there are plenty of firms which demand (and have) quality standards well beyond those laid down in the international ISO 9000 standard. Similarly, getting a certificate is a subset again: you can have a perfectly good quality system, and have it conforming to an agreed standard, without having a piece of paper saying so. In itself, it doesn't make your Quality Systems any better.

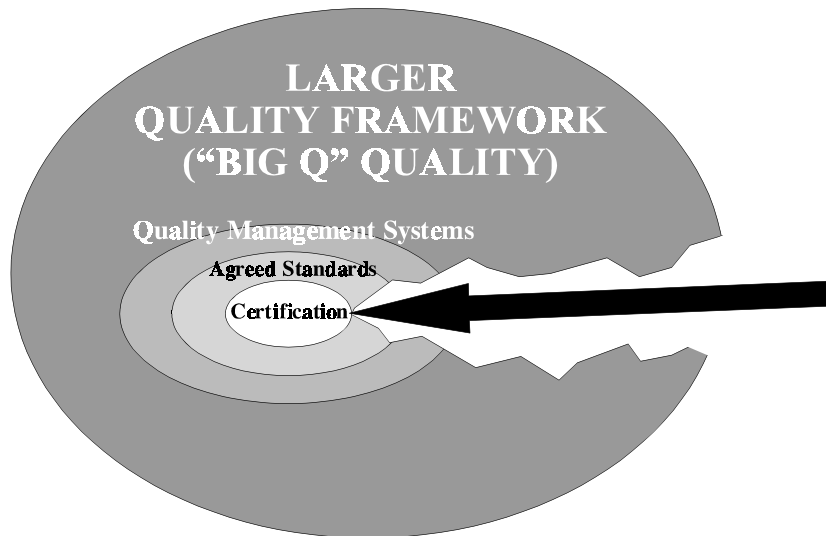


If systems, standards and certification are approached in this context and with this understanding, benefits can be enormous as well as sustained in the long term.

Note, by the way, that this also illustrates that standardisation and certification are separate issues. They are often confused, but they are two different matters, with two different purposes. We'll elaborate on this later.

Fast Path to Nowhere

Our second concern is that many organisations take a fast path directly to the certificate, as in the picture below, with total disregard for the fact that certification is only meaningful and beneficial if it is done for the right reasons and in the right environment.



In the short term, it may mean that they keep some of their Customers a little longer. However, fundamentally, nothing has really changed and long-term benefits are minimal or zero. They may even be negative. A sobering question: If all we do is go for the piece of paper, what happens when everybody's got it? The answer is that we've all spent time and money to get to the same competitive situation we started with. Doesn't really make a lot of business sense, does it?

"Is the idea plain crook, or is it badly implemented, or poorly sold?"

Phillip Adams

The Cause of the Problem

The major growth in quality certification occurred during the early to mid 1990's. Unfortunately, the education and training infrastructures were not prepared for this. There were not many experienced practitioners available, and the universities and TAFEs neither had appropriate syllabuses prepared, nor competent lecturers to teach the courses as they were developed.

On the whole, people were learning by experience.

At the same time, the recession was pushing people out of organisational employment, and seeing the demand for advice on quality systems, many of these people moved into consulting businesses.

A classic case of the blind leading the blind!

This lack of basic education is, in our view, at the core of the 'fast path to nowhere' chosen by many organisations.

While the demand for certification has subsided, and most of the less competent consultants have left the industry, the legacy of poorly developed management systems remains.

Research published in 1998 reinforces this. It concerns those things financial experts consider to be indicators of organisational value. The top non-financial factors included the quality of strategy and its execution, innovativeness and quality of major processes. The least valuable? Process quality awards, product quality awards and, at the bottom of the list, the number of Customer complaints.⁽¹⁾

We'd like to foreshadow a metaphor which we will develop in more detail later on in the book. Imagine your efforts to improve quality and business performance as the task of rolling a big rock up a mountain. At the top is your ultimate goal: Organisational Success. This summit is shrouded in clouds - you can't see it, but you know it's there, because you have defined it. You also know, that you'd better keep pushing this rock up the slope, if you want to achieve sustained business success. Wouldn't it be nice to have some kind of wedge to put behind the rock from time to time, so that it can't roll back?

Some of this book is about pushing the rock up the hill, but mostly it's about the wedge.

"Short-term cultural change programs make about as much sense as setting out across the Pacific in a leaky rowboat."

Oscar Mink

Chapter 1 - Key Points

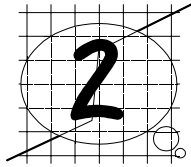
- There still is a lot of confusion and misunderstanding about quality, systems, standards and certification;
- A Quality Management System is one of a number of organisational systems and part of the larger organisational quality framework;
- Standardisation is ensuring that Quality Systems conform to an agreed standard, which can help to improve understanding, effectiveness and efficiency;
- Of itself, certification doesn't make the Quality System any better, but where the reasons are right, it may add value to the organisation;
- Quality Systems and standards play an important role in locking in the results of continual improvement.



1. This research was conducted on 575 US brokers and funds managers by Ernst & Young's US Center for Business Innovations, and was quoted in Business Review Weekly, 16 February 1998.

"Some habits of ineffectiveness are rooted in our social conditioning toward quick-fix, short-term thinking. In school, many of us procrastinate and then successfully cram for tests. But does cramming work on a farm? Can you go two weeks without milking a cow and then get out there and milk like crazy?"

Stephen Covey in 'Principle-centered Leadership'



The Eye of the Beholder

“It is quality rather than quantity that matters”

Lucius Annaeus Seneca, 4BC - 65AD

“Never mind the quality, feel the width”

TV Sitcom, ca.1970.

If you ask a hundred people for a definition of quality, you’ll get a hundred different answers. Everybody agrees that it’s ‘A Good Thing’. So are healthy food and regular exercise. It doesn’t really get us closer to a definition.

Quality as an Attribute

In some of our workshops, we ask the participants to call out the kind of words or phrases that come to mind when being asked to define ‘quality’. We collect these on a flip-chart or on the whiteboard, and use them as a discussion starter. Here is the ‘harvest’ from a workshop of a few years ago. Obviously, and not surprisingly, each idea was prompted to some extent by the ones that came before it.

- Conformance with Specifications
- Value for Money
- Fitness for Purpose
- Absence of Defects
- Whatever satisfies the Customer
- Delighting the Customer
- Meeting Expectations
- Exceeding Expectations
- Consistently meeting agreed requirements
- Predictability

These ideas form a useful place to start an attempt at defining quality. So, let’s look at these, taking a few liberties with the exact wording.

Quality is Conformance with Specifications

This sounds reasonable. But whose specifications? Let's say that the moisture content of a solvent must be no greater than 0.25 percent by weight. This is a specification. Who made this 'specification'? Is it a genuine Customer requirement, and if so, how are we achieving it? You might say that, if the Customer expects a maximum moisture content of 0.25%, and we consistently give that to them, they get quality.

Now suppose our process produces batches of solvent with up to 0.5 % moisture. We test every batch, and we only ship those batches with a moisture content of 0.25 % or less. The rest goes back into the process for reworking - perhaps an extra drying cycle. From the Customer's point of view, we are conforming with the specification. However, would you describe such a situation as quality?

Quality is Value for Money

In the previous example, the facts that all the product has to be tested, and that some of it has to be reworked means that the cost is increased. Guess who pays for this! If we don't recover this extra cost from the Customers, we'll go out of business.

Suppose we make a breakfast cereal that eventually costs the Customer \$5.00 a packet. It's a good product, and the Customers are happy with it - they are getting value for money. Let's say we could make this cereal at half the cost, by improving our processes and cutting out waste. If we don't drop the price, can we honestly say we are selling quality? Maybe we can, because it is generally considered good business practice to pitch our prices at the upper end of what the Customer perceives as good value. But it's nice to have room to manoeuvre. Otherwise the first of our competitors who decides to redefine 'good business practice' may put us out of the market!

So, although 'value for money' is not a bad quality principle, it tends to be a bit vague and is obviously not the whole story. It could lead to a mentality of "*If it ain't broke, don't fix it*". Firms who think this way are vulnerable in the long term to those who don't. Even if it weren't for our competitors, we'd still owe it to ourselves and to the rest of the world to improve things all the time. Deep down, nobody fully enjoys their job if they know that it can be done better. Joel Barker's words are sobering: "*Not doing your best, but presenting it as your best is a lie. And lying corrupts the soul*".⁽¹⁾

*"All good things are cheap;
all bad things are very dear."*

H D Thoreau

Quality is Fitness for Purpose

There are some good aspects to this definition. For example, if you want to carry home the groceries from the supermarket, you wouldn't expect to have to buy a leather briefcase at the check-out. Similarly, if you're going to a business meeting, you wouldn't carry your papers in a plastic supermarket bag! Talking about supermarket bags, fitness for purpose goes rather more deeply than you might imagine: we know a family who changed supermarkets because the carry-out bags didn't fit their kitchen tidy bin!

Like the other definitions we've looked at so far, fitness for purpose is only one of the many aspects of quality.

Quality is the Absence of Defects

The absence of defects or error is, of course, a good thing to aim at, but is it quality? After all, it's the least the Customer expects. It's like saying that happiness is the absence of conflict. We know there is more to being happy than simply not being unhappy. Not being unhappy is a minimum requirement. In a similar way, to have quality, you need the absence of defects or error as a minimum requirement. It is not itself quality. Some people put it this way: *"Quality is not only the absence of defects, it is also the presence of value"*.

Quality is Whatever satisfies the Customer

Although this definition has the same problems as 'Value for money', at least it mentions the Customer explicitly. The Customer is the reason for our being in business. *"No Customers, no orders, no jobs"*, as Deming was fond of saying.

Quality is delighting the Customer

This goes a step further than merely satisfying the Customer. Toyota has used this definition. A variation is: **"Quality is what makes Customers come back for more, bringing their friends"**. With these definitions, we're beginning to get somewhere, because they don't talk only about the goods. They also talk about everything that comes with it. For example, if you bought a new TV set with superior picture and sound and at a low price, you might think you are getting value for money. If you then discover that the only way you can get a minor fault repaired is to send the set interstate, would you go back for more, taking your friends?

Another example: Why do many people, particularly elderly people, prefer to do business with community credit unions rather than with banks? It's not because of better financial services or interest rates. Often the banks do as well or better in these areas. No, it's because the credit union staff will greet them by name, inquire after their families, and more often than not be happy to have a little social chat. This is a typical example of enhancing the basic product or service by adding value.

Quality is exceeding the Customer's Expectations

This looks like a laudable aim. Nevertheless, it is generally not a good idea unless you are sure you are adding value somewhere. In fact, it can be disastrous if the Customer is not closely involved. There is a famous case history where a certain chemical was made to a higher grade of purity, at no extra cost. It played havoc with the Customers' processes, which had been designed for the lower grade. By 'improving' the product without involving the Customer in the project, the fitness for purpose had actually been reduced.

Quality is consistently meeting the negotiated Requirements of the Customer, with a high Degree of Predictability

The plot thickens! Here we have several more dimensions of quality: Consistency, Negotiation, Predictability.

Consistency means not merely meeting your Customer's requirements some of the time, or even most of the time, but all the time. For instance, if you went to a pizza parlour and got the best pizza you've ever tasted, you would probably go back, taking your friends. If the next time your pizza was cold, with a tough base and rubber-band cheese, would you go back a third time? Would you consider that pizza parlour as providing quality?

A high degree of predictability means that you know what to expect, and get it. Let's stick with the pizza example for the moment. Suppose you ordered a pizza marinara on two occasions. The second one had quite a different flavour and texture from the first, even though both were excellent, as far as pizzas go. Is this quality? You can go into a McDonalds anywhere in the world and know exactly what you are going to get. Is that quality? Both are aspects of quality. On their own, they're not enough.

"The bitterness of a lack of quality remains long after the sweetness of low price has been forgotten".

Tostain

Developing the Theme

Let's explore a bit further before deciding whether we want to attempt an all-encompassing definition. Jeff recalls the time when he was first challenged on the meaning of quality some years ago:

"I was a plant metallurgist and we despatched products to Customers if they were within specification. To us, quality was just that: 'conforming to specs'. We didn't really think about how relevant or up-to-date the spec was, or whether it was written to suit our capability to produce. One day we were sent out to visit some Customers and received a rude awakening: they weren't interested at all in whether or not the product was within our specifications. What they were interested in was that they couldn't use it, because it didn't meet their requirements."

The word 'quality' is used widely - it's almost a buzz word. People talk about quality products, quality service, quality time, quality cricket, and even quality free kicks! Do these people really know what they mean? Take, for example, 'quality service': some people will argue that unless it is quality, it isn't service. And what is a quality free kick? I guess it depends on whose side you're barracking for!

Another view has also emerged in recent years. This holds that 'Quality' is obsolete and should be replaced by 'Business'. Proponents of this view argue that quality is all about running a sound business - is, in fact, integral to it. Of course we agree with this argument. However, the term 'quality' does convey a unique set of meanings, which can be lost if the term is replaced by something as generic as 'business'.

In certain types of business, such as the automotive, food or pharmaceutical industries, quality is a strategic imperative. The term needs to be retained to convey a specific meaning.

The question then arises: "What is this meaning?" Before sharing more of our views with you, let's have a look at a few ideas from other sources:

In 'Thriving on Chaos', Tom Peters says: "*Quality is what the Customer says he needs*"⁽²⁾. While this definition of quality certainly has an element of validity, it is incomplete and inadequate. It is expanded in 'Quality Assurance for Suppliers', a guide published by Purchasing Australia⁽³⁾.

“Quality is the sum of the features and characteristics that satisfy the Customers’ needs throughout the life of the product or service.

Quality is not excellence for its own sake. A quality product or service is the one best suited to the Customers’ requirement at a reasonable price, rather than the best that money can buy.”

These descriptions convey the concept of quality as a service (which might also carry some physical goods along with it) to meet Customers’ needs. It has to match the requirements of the Customer. It has to represent value for the Customer.

That’s fine in principle, but Customers don’t always explain in detail what they want. They give a broad picture to the supplier (*“I’ll know it when I see it”*) and assume that the rest will match expectations.

For instance, we expect that our restaurant meal will be fit for human consumption, appropriately heated or chilled, served in pleasant and clean surroundings, and that it will be provided in appropriate quantities. Another example: we assume that the plumber will turn up when he said he would, and let us know if he can’t.

Sometimes we don’t specify the detail because we don’t know it. Quality educator John McConnell writes: *“The Customer is King, but sometimes the King is blind”*⁽⁴⁾. For instance, if we need to treat a wound, we want dressings that are sterile and effective, but do we quote the Therapeutic Goods Administration to the chemist when we go to buy some? Do we study the Australian Design Rules for motor vehicles before buying a car? No, generally we assume it’ll be OK.

Sometimes the Customers don’t even want to be involved. There is very little, if any, user input to the design of car seat belts - from a comfort and convenience point of view, we’d rather not have them at all!

From ISO 9000 concepts, Quality could be defined as follows:

“The complete set of characteristics of an entity that bear on its ability to satisfy stated and implied needs.”

This needs some further explanation, and, again from the context and spirit of ISO 9000, the following can be observed:

- Needs might be specified by contract or regulations - or it might be necessary to work them out and define them.

Unkind Cut?

We've heard a story about a Japanese quality expert visiting Australia and being bemused by the sign 'QUALITY BUTCHER'. He spotted several versions of it in every shopping centre he visited. "You seem to have a lot of people in the business of destroying quality", he commented, tongue-in-cheek.

- Needs can change over time. (What you needed from your dentist when you were a child is not what you need from him or her now!)
- The term 'Needs' covers a plethora of characteristics, from performance to aesthetics. These need to be specified with criteria of acceptance, so that people know what they are aiming at, both qualitatively and quantitatively.
- Needs can include the requirements of society at large: safety, environmental impact, security, energy and resource utilisation.

And, perhaps most important of all:

- *The term 'quality' is not used to express a degree of excellence in a comparative sense, nor is it used in a quantitative sense for technical evaluations.* - In other words, quality is not to be confused with grade, or level, or rank, or degree.

Note that for this reason, we don't use terms like 'Good Quality' and 'Poor Quality' - they don't fit with the above definition and they don't really make a lot of sense when you think about it. How can something be poor quality? What we really mean when we say 'Poor Quality' is the absence of quality. And what about 'Good Quality'? Well, that's a kind of double positive - if there is quality, it is, by definition, good.

"Quality has much in common with sex. Everyone is for it (under certain conditions of course). Everyone feels they understand it (even though they wouldn't want to explain it). Everyone thinks execution is only a matter of following inclinations (After all, we do get along somehow). And, of course, most people feel that all problems in these areas are caused by other people (if only they would take time to do things right)."

Philip Crosby

OK, it's time to look at all these various facets, examine them, and try to come up with some definition that sums up the essentials.

A Working Definition

Why do we seem to have so much trouble getting a satisfactory definition of quality? To answer this, we need to understand that quality is not merely some easily defined aspect of a product. Like a TV set that doesn't break down, a solvent without impurities, a shipment that arrives at the promised time. We need to work our thinking around to the fact that quality is actually a basic concept, with both rational and emotional components, which we must both understand and 'feel', rather than try to define in terms of other things.

Jon Choppin mentions a seminar he ran at Leyland's, where one of the participants defined quality as a perception. He explained further that he felt quality could be all things to all people: "*quality, like beauty, is in the eyes of the beholder*"⁽⁵⁾.

This means that quality affects us all, all the time. It's not only something for operators, or engineers, or managers, or salespeople, or Customers. Quality is a part of life. If we all understand and practise this, life will be happier and business will be better.

However, this also means that finding a single, all-encompassing definition of 'Quality' may well be an impossible mission. Kevin Foley has suggested that we might as well admit this and get around the problem by having multiple definitions, depending on the context. In other words, firstly articulate the *purpose* or context for which you want a definition of 'quality', and then create a definition that suits that purpose or context⁽⁶⁾.

We believe that any definition of quality needs to include reference to the following:

- Customer focus: This is arguably the single most important characteristic of an excellent organisation;
- *Other interested parties*: Also referred to as other 'stakeholders'. It doesn't take great genius to work out that Customer focus cannot be optimal in terms of relationships, effectiveness and efficiency (at least not in the long term) if the interests of other stakeholders (owners, employees, suppliers, the community) are not factored in;

- *Control of Variation*: The more variation is controlled, the better you know what you're giving your Customers, and the better they know what to expect;
- *Defined standards*: Effective business relationships depend on everyone knowing where they stand and what's happening;
- *Continuous Review*: What your Customers (and other stakeholders) expect today is not what they expected yesterday and won't be what they expect tomorrow. Similarly, what you can do for them today is not what you could do for them yesterday or what you will be able to do for them tomorrow;
- *Value-adding*: Any operation or transaction where no value is added is waste;
- *Win-win*: In sound and lasting business relationships, the value-adding is in both directions.

Taking all this into account, we now propose the following definition for the purpose of most of this book:

Quality is consistently meeting the continuously negotiated needs and expectations of Customers, in the context of the needs and expectations of other interested parties, in ways that create value and satisfaction for all involved.

In Part 4, when we talk more about the larger quality framework, we may add to this. But for the time being, we believe this definition is a satisfactory tool to lend perspective to our main theme: an understanding of quality systems, and their integration with all the other processes by which you endeavour to run a quality business.

Chapter 2 - Key Points

- Finding a definition of 'Quality' is a rich source of debate and argument;
- The best idea seems to be first to define the purpose for which you want a definition and then formulate a definition of 'Quality' that fits within the boundaries of that purpose;

- With that in mind, we propose the following definition of ‘Quality’ for the purpose of most of this book:

Quality is consistently meeting the continuously negotiated needs and expectations of Customers, in the context of the needs and expectations of other interested parties, in ways that create value and satisfaction for all involved.

- This takes into account the various principles on which the intent of the standards is based.

Value for all Stakeholders?

‘The Age’ of 24 August 2000 quoted a banking industry spokesman as claiming that the Australian banking industry has no social responsibility to fulfil.

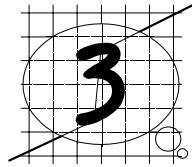


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2. *‘Thriving on Chaos - Handbook for a Management Revolution’*
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3. *‘Quality Assurance for Suppliers’* - A quick Guide to the Commonwealth’s Quality Assurance Policy
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4. *‘Safer than a known Way’*
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5. *'Quality through People'*
by Jon Choppin
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6. Prof. Kevin Foley, in an address to the Quality Society of Australasia
at RMIT University, Melbourne 28 July 1998

"We have found that like all important ideas, quality is very simple. So simple, in fact, that it is difficult for people to understand."

Roger Hale



What is a Quality Management System?

“Nothing in life is to be feared. It is only to be understood.”

Marie Curie

So far, we have described ‘quality’ in a very broad context. It may therefore seem contradictory to add the word ‘system’. How can you combine the two? How can you reduce a broad conceptual approach to a mere system? If you force everything into a tight system, won’t this reduce flexibility and responsiveness to Customers, and stifle the creativity so necessary to fostering improvement?

The answer, of course, is that the quality concept isn’t squeezed into a system, and that a systems approach to many things is, in fact, a necessary part of the concept.

It is not hard to find examples where NOT having a rigorous, standardised approach can be counterproductive or even downright dangerous. For instance, processes like hospital care, medical interventions, aircraft maintenance and the disbursement of money throughout all areas of business and government are expected to occur within a framework of well-defined procedures and clear authority. The reason for this is obvious - management of risk inexorably leads us to management systems, whether it be in areas of occupational health and safety, environmental management, insurance, financial control or..... quality!

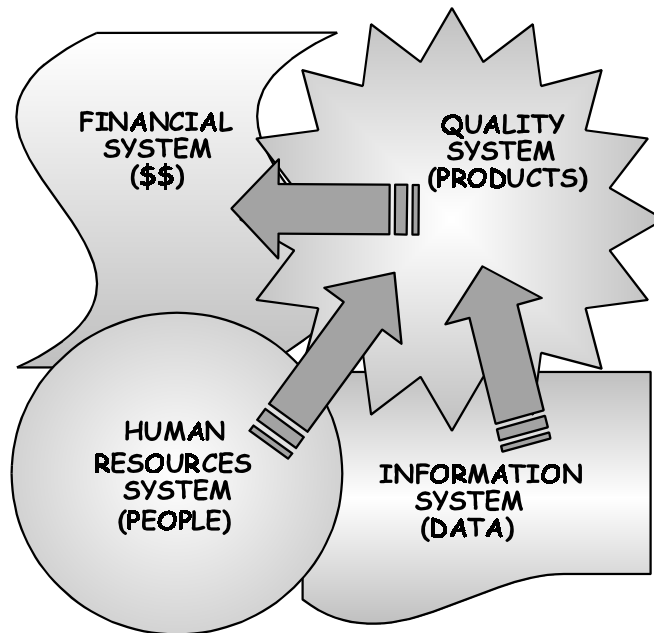
Systems in an Organisation

When you think about it, successful organisations use a variety of systems to conduct their business. For example:

- **Financial Systems** to manage resource allocation. In most successful organisations, the financial system will have been designed around the company's specific needs and in compliance with accounting standards. Resources are provided to maintain the system and people understand the need to work within it. To ensure that the system maintains its integrity, it is regularly audited.
- Many organisations operate **Computer (I.T.) Systems** for capturing data, and storing, handling and retrieving it to provide information for decision making and performance monitoring. These systems are (generally) designed with the organisation's needs as their focus and are made to interface with, and complement, other functions such as the financial system.
- **Human Resource Systems** to ensure the business has competent people, through their careful selection, training, and development. The system covers all relevant requirements for remuneration and people management. A good HR system also ensures that these are integrated with behaviours appropriate to the organisation's values.

These are perhaps the three most obvious systems in any organisation, but still represent only part of the full complement of systems. A fourth system that should be at least as obvious, but usually isn't, is the **Quality Management System** (or simply Quality System). All other systems interrelate with the Quality System, as their outputs are transferred through the organisation. The financial system measures the outcome of the Quality System in dollar terms; the human resources system and the information system provide inputs to the Quality System, as shown on the opposite page.

Most systems vital to the effective and efficient operation of a business are generally well-designed with the needs of various interested parties in mind, and with appropriate linkages between the systems. However, when it comes to systems for managing the creation and delivery of products (ie Quality Systems), it is our observation that many organisations don't have anything that either has been consciously designed or integrates with the actual product-creating processes. Any systems that may exist have often evolved reactively, as problems have been addressed or as Customer or regulatory



demands have arisen. This can be particularly obvious in very young organisations that have been set up quickly to make use of some new technology.

In other cases, such quality systems as are formally recognised may seem to bear little relationship to the real purpose of the organisation. They are seen as a 'cost', a stifling influence, a non-value adding activity, something that has to be done because some Customers demand certification.

Why should this be a cause for concern? Let's look at a few facts:

The enterprise operates processes to create products for Customers, who in turn pay the organisation for these products. Costs incurred and revenues raised are measured and controlled by the financial management system. Other than by direct financial investment, this system doesn't produce any revenue itself. Nor do the other support systems. Generally, the only system that generates revenue for the company is the system that controls the product-creating processes.

Another point: In business accounting we talk about the concept of 'Economic Value Added'. In simple terms, this can be expressed in dollars as gross revenue minus bought-in supplies (ie all costs except salaries). As these are all functions of the company's product-creating processes (operated by people), Economic Value Added is generated in the system that controls these processes.

The system that controls the organisation's product-creating processes is, in fact, the Quality system, so we must conclude that:

*In many organisations, the Quality System
is both its key value-adding system
and its only revenue-generating system.*

In the light of all this, it is curious, to say the least, that many organisations' emphasis on their financial management systems is not shared with at least as strong a focus on their Quality Management Systems!

Thriving on Chaos?

Jeff recalls a manufacturing facility in which he was once involved:

"It was a highly capitalised plant, set up with modern equipment as a new venture. There had clearly been little thought given to the product management systems, and the business was so young that there was no real opportunity for reliable systems to have evolved. There were no documented product specifications or test methods; anyone could dispatch anything at any time; the place was littered with scrap and returned product. Not surprisingly, the organisation was in a state of constant conflict and stress."

The Purpose of Quality Management Systems

A sound quality system has two main purposes. The first is to provide a systematic way of understanding what the Customer really wants in the products we create and of ensuring this information is correct. People sometimes feel that quality systems will inhibit the company's responsiveness, their ability to react to Customer requirements. However, quality systems provide a means of incorporating the Customers' variety of seemingly unpredictable wishes, rather than inhibiting creative relationships with them. Customer-friendly interfaces are essential, and well-developed quality systems don't destroy those. We'll show you later in this book how to develop flexible systems - systems that are free of unnecessary bureaucracy and still provide the organisation with the reliability necessary to be able to deliver on its promises.

The second purpose follows from the first: it is to ensure that you can consistently deliver exactly what is expected, and can verify the extent to which you achieve that through Customer feedback.

A Quality System, along with the enterprise's other systems, forms part of the organisational 'memory'. This works much like the human memory: it is continually changing, adapting, expanding, and it works at various levels of storage and recall.

"Where there is a void [in communication], people will make up their own information to fill it".

Victor Rosansky

Let's make no mistake about it: unless a Quality System is seen as a dynamic, 'living' thing, it is not likely to fulfil its purpose.

The Structure of Quality Management Systems

To achieve these purposes, quality systems consist of three fundamental elements:

1. The organisational 'memory'. This is made up of two components: (a) documents that describe what is done in the organisation to identify and achieve the Customers' requirements, and (b) competent people who apply knowledge to achieve these outcomes.
2. An audit trail of activity through all of the interrelated processes, so that it is possible to see the system working as described in the documents.
3. Records to prove that it has been working according to plan.

Let's briefly look at these in turn.

Organisational Memory

The tangible component consists of documents (including those defined in various standards and regulations) describing what is done to identify and achieve the Customer's requirements, to help ensure that people have a common understanding of what they are doing. This is ideally maintained in balance with the nature of the training system, in the context of the risks involved in the processes, and the size and complexity of the organisation. The authority of each person who has an effect on the system is defined - who has the power to make each kind of decision. To complement this, the responsibilities are also recorded - who is required to act on those decisions or perform various work functions.

In addition, standard ways of performing the work within the system are laid down. The processes which impact on Customer satisfaction are known, and

have been reviewed to ensure they are effective. They are the only approved way of working until a better way is developed, tested, approved and recorded.

If this sounds restrictive, try to recall occasions in the past where you have introduced some process improvement. What has happened to it? The chances are that, unless the improved process was institutionalised as the new approved way of doing things, time and habit will have dragged the process back to where it was before.

By documenting procedures we need not squeeze out the flexibility to serve Customers. Standardisation can be as broad as is necessary. For example, sales people need a lot of room to manoeuvre in identifying Customers' requirements, negotiating the deal and winning the order. So you ensure they have it. However, when they make the sale, they should only commit the

"I've been here a year...nothing's written down. You don't know who's doing what. It's not really an organised fashion of working".

Stock controller of an industrial company

organisation to what it can realistically perform, and also make sure the details are not left to memory. At this point the flexibility is restricted for a good reason: to ensure that promises become reality.

Audit Trail

An audit trail (similar in concept to a financial audit trail) makes it possible to show that the organisation's processes are effective in identifying and achieving Customers' requirements. It should be possible to follow a trail through the organisation's processes, from the discernment of Customer requirements, through verification of their satisfaction, to improvement of the processes to maintain a competitive position in the market. In doing so, we should be able to see consistency between the process as it is documented and the process as it actually operates.

When problems do occur, they are addressed. Firstly to fix the situation for the Customer, and then to find the root cause of the problem and address it, so that the problem stays fixed. Some of this is discussed further in Part 4 of this book.

Suffice to say that part of a sound approach to quality systems is a focus on product and process improvement that interfaces and supports other improvement strategies in the organisation.

Instant Quality System

“To be sure of hitting the target, shoot first, and whatever you hit, call the target.”

Quoted by Malcolm Gray

Records

Records are retained to show the viability of the quality system and its outputs. This doesn't mean you have to move to new premises to accommodate all of the paper you will generate - in fact one company we know of actually reduced the quantity of records they held when they examined what was really needed as they implemented their quality system. They disposed of over 20 filing cabinets in the process. In any case, companies usually keep most of their records on computers. It's not so much the volume of records that are kept, but a judicious selection of types of records and methods of collation that are important. As always, it's quality, not quantity that matters and, in any case, electronic record space is not expensive.

The Chicken or the Egg?

The logical thing to do now, especially in the light of what we said in chapter 1, is to go on with more detail about Quality Management Systems: how you design, implement and manage them. This would then be followed by an explanation of quality system standards, and eventually we would get around to the issue of certification. This would preserve what we believe to be a desirable progression: build a quality management system to suit your needs, next turn to the standards for additional guidance and ideas, and then consider the possibility of certification.

However, we found it almost impossible to give meaningful and practical advice about quality management systems without at least some reference to the standards. In turn, referring to the standards without explaining them first would be confusing. Rather a chicken-and-egg situation!

As you will see, we've chosen to talk about the standards first. *But we stick to our advice that the standards must be the servant of your quality system, and not the other way around.*

"The consistency of approach and accuracy is important. The Quality Management System helps us do that. It's good for training people to do things in a regular ordered process."

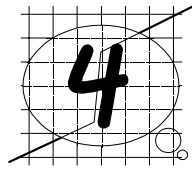
Contracts Manager

Chapter 3 - Key Points

- All organisations have a number of interlinked systems, such as financial, computer and personnel systems;
- The Quality System is often overlooked as an important member of this complement of systems;
- This is surprising, as the Quality System is often the only revenue-generating System, as well as an organisation's key value-adding system;
- In simple terms, the purpose of the Quality System is to understand what the Customers expect and to make sure they get what we promise them;
- Quality Systems consist of the Organisational Memory (in the form of documents and skilled people), Audit Trails, and Records;
- Quality Systems are flexible, living systems, not concrete straightjackets.

"Do everything that is common sense. If you leave nothing out, you don't have to do anything profound."

Dick Pratt



What are Standards... ...and why have them?

“Let all things be done decently and in order”

1 Corinthians 14:40

What is a Standard?

A standard is anything taken by general consent as a basis for comparison - an approved model.

In other words it is something that everyone concerned understands, and to which we can compare what we have done or made. We, and everyone else, will know whether the agreed criteria have or have not been met.

There may, for example, be an agreed standard for a particular chemical - Standard ISO-wotsit, say. Then, if a Customer wants some of this chemical, they don't have to give us detailed specifications. They can simply say “We want it according to Standard ISO-wotsit”. And because we both know and understand this standard, we know what to supply, and the Customer knows what they will get.

So, Why Quality Standards?

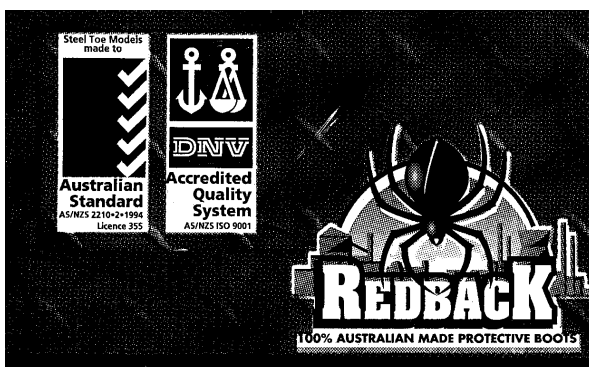
A Quality Standard is basically a listing and description of the areas of risk within the processes of an organisation. Built up over many years, it alerts us to the aspects of our processes to which we need to pay close attention, so that our processes don't become unreliable. It ensures that all the things that need to be taken into account in a good Quality Management System are, in fact, covered. Standards are blueprints to help manage a business properly.

A standard ensures a common understanding and thus helps you purchase goods and services with greater confidence. For example, if you go to a professional specialist, like a doctor, how can you be sure that he or she has done the necessary training and practice to give you the service you need? Well, one thing you can do is to look at their qualifications - at the least they should have a degree from a college or university. And, if you like, you can find out exactly what they had to do to get that degree.

It's the same kind of thing with Quality Management Systems: If quality is important to you, you not only need to know that your supplier has a Quality Management System in place. You also want to know what kind of a system it is, and what they had to do to get it. If they have a certificate showing that their System conforms with a known, agreed standard then it's easier for both you and your suppliers (and, for that matter, you and your Customers) to be on the same wavelength.

Going back to your doctor for a moment, just because he or she has the appropriate degree, it doesn't tell you anything about how good they are at putting their knowledge into practice. There is a difference between, if you like, 'knowledge standards' and 'delivery standards'.

Similarly, there is an important difference between quality standards and product standards, which is worth explaining here. A quality standard does not of itself specifically guarantee that products will meet their agreed specifications. It ensures that the business is run in such a way that Customers' requirements are properly identified. It ensures that internal resources and processes are managed in such a way that physical and service



products will be created which match those requirements. It ensures that, in the words of ISO, there is an 'adequate level of control' in the organisation. A quality standard guarantees the means, but not the outcomes.

The picture above illustrates this difference. It was taken from the carton in which industrial boots were supplied. There are two logos on the box:

- One indicates a product certification – the boots meet an agreed standard for industrial footwear, so when we use them we can be confident that they are up to the job;

- The other indicates a quality system certification – the boots were produced under a regime of process management which ensures that risks within the processes are managed so that consistently acceptable products are produced.

Quality systems provide a form of control to ensure that process risks are managed. It is, however, important to know the scope and limitations. Experience shows that it is valid to expect products to conform with agreed specifications if the supplier has a quality system which complies with the standard. More than this, if we want to be able to consistently create product outcomes that meet agreed standards, we must have reliable process management systems. Quality standards provide a benchmark for basic integrity.

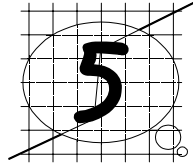
Chapter 4 - Key Points

- A standard is a model for comparison, agreed by all interested parties;
- It aids understanding and ensures everyone works from a common basis;
- There is a difference between a quality standard and a product standard;
- Quality standards guarantee the means, product standards guarantee the outcomes.

Standards ensure reproducibility:

*“Oh certainly, I’ve learned from my mistakes,
and I’m sure I could repeat them exactly.”*

Peter Cook, in ‘The Frog and Peach’



The Origin and Development of Quality System Standards

*“Crude classifications and false generalisations
are the curse of organized life.”*

H G Wells

There is a story told in quality circles (!) about the origin of quality system standards. According to this explanation, a group of boffins got together in a ‘think tank’ to devise a method of sabotaging the effectiveness of organisations generally, and of small businesses in particular. After much discussion and hard work they produced the ISO 9000 series of standards.

In reality, of course, the origin (and purpose!) of quality system standards is quite different, if less fanciful. In this chapter we will take a brief look at how quality management system standards evolved, culminating in the publication of the internationally-recognised ISO 9000 series of standards.

Product standardisation, and systematic methods of ensuring that it is achieved in practice, can be traced back thousands of years. In fact, in olden days it wasn’t so much a matter of rewarding quality successes as severely punishing quality failures. If you are interested in these historical side-tracks, you might like to check out a few articles on the subject in the journal ‘Quality Progress’.⁽¹⁾

Formal product standardisation became a worldwide development during the first half of the 20th century. It went hand-in-hand with the development of critical products, such as aircraft, in high volume manufacturing environments. In the frantic high-volume conditions of World War II, it also became apparent that working to formally-documented product standards within an informally managed quality control environment did not necessarily lead to consistently good products.

Developments in the USA . . .

During and immediately after the second world war, the United States Department of Defense developed a number of Military Specifications. These described the way a quality control system was to be developed, documented and controlled to provide confidence to the purchaser and "to

insure [sic] that suppliers will meet the quality standards established by the contract".

"You can absolutely count on Americans to do things right - after they have tried everything else."

Winston Churchill

This was contained in the basic standard 'MIL-Q-5923, 8 Dec 1950: Quality Control of Aircraft and Associated Equipment'. This dealt with inspection and the control and disposal of products that didn't match the requirements of the order (i.e. that were defective). Essentially, MIL-Q-5923 says: *"Write down how your Company works, especially in the area of product inspection, make sure people are properly equipped and know what they are doing. If any products are no good, separate the bad ones from the good ones. Have someone in charge of deciding what to do with these defectives and then get them out of the system."*

Many people consider quality systems approaches to be a burden. However, this was never the intention. To quote from MIL-Q-5923: *"The contractor shall develop and maintain an effective and economical quality control system..."*.

This standard remained in place until the latter part of the 1950's, when two significant developments took place.

One was a new military standard 'MIL-I-45208A: Inspection System Requirements'. This built on the previous standard by describing how an effective inspection system should function as a whole. According to this standard, in addition to adequate control of defective product, there needs to be:

- Written work methods containing criteria for acceptance and rejection of products;
- Full records of all inspections;
- Up-to-date information for inspectors;

- An effective corrective action process;
- Calibrated inspection equipment;
- Clear indication of inspection outcomes;
- A system for the care of product supplied by Customers.

*Note that this is still heavily oriented towards inspection as the sole means of ensuring that products meet specifications. **Contemporary approaches to quality recognise this as generally costly and ineffective and it should be made unnecessary wherever possible.***

Building on this standard, was the development of standard 'MIL-Q-9858A: Quality Program Requirements'. This had requirements in excess of MIL-I-45208A, and dealt with the control of work operations as well as inspection and test activities. In addition to the requirements described above, it covered the following:

- Effective planning of all work prior to commencement, which included documented instructions for all work affecting quality, from purchasing to despatch;
- Decision-making processes which incorporate data of costs related to defective product;
- Control of purchases, covering the pre-qualification of prospective suppliers and their products, and orders which fully describe what is to be supplied;
- The appropriate utilisation of statistical methods.

These were the de-facto national quality standards within the USA through to the late 1980's.⁽²⁾

"Defects are not free. Somebody makes them and gets paid for making them."

W Edwards Deming

Meanwhile, in Japan . . .

In Japan, a slightly different approach was being adopted. In 1949 the Japanese Industrial Standardisation Law was proclaimed and the Japanese Industrial Standards Committee (JISC) was established. JISC established the JIS marking system, which is a voluntary certification system, somewhat similar to the Australian StandardsMark system⁽³⁾. Covering over a thousand products, it acts as proof that products comply with their relevant specifications on an ongoing basis. To be awarded the JIS mark, a company's production and testing facilities and methods are assessed, as well as the following:

- Its quality control methods, which must be documented for each product. They must cover raw material, product, process and facilities control, the control of subcontracted activities, the maintenance of appropriate records to be used for the *"promotion of quality control"*, and the proper handling of user complaints to lead to necessary improvements. These company standards (read 'quality systems') are to be *"appropriately reviewed and understood by the employees"*.
- *"Whether the standardisation and quality control activities are systematically performed"*.
- Whether the company has a qualified 'QC Promoter' in the terms of the JIS Law. This law itself is most interesting: It defines the basic qualification and experience requirements for this person and outlines the authorities and responsibilities of the role (which would serve as the basis of a good position description for any Australian quality manager).

Another interesting aspect is that Article 21 of the Law permits the relevant government minister to order an on-the-spot inspection of the company and order the manufacturer to discontinue sales for up to 40 days if products are found not to comply with the product standards to which they have been approved!

So the Japanese approach was not based solely on Quality Control Circles, or what we describe as 'TQM' (as pictured by some 'selective' historians), it also has a strong basis in standardisation and what we call quality systems. On the other hand, we must be careful in our interpretation of this history: The Japanese use the word 'control' the way we would use 'management'. So when they talk about quality control, they don't only mean quality systems, they also mean quality management as a broader concept.

A Japanese Company's Quality Development

The development of quality methods in Japan is illustrated by this chronology contained in the quality manual of a particular Japanese manufacturing company (keeping in mind that, for the most part, the word 'control' needs to be interpreted as 'management'):

- 1951 Statistical quality control introduced
- 1952 Quality control committees set up
- 1956 Company rules on quality control introduced by the company president
- 1958 The company is awarded the Deming prize for "excellent performance of quality control"
- 1959 Statistical quality control had been transformed into a company-wide quality control system
- 1963 Quality Control Circle activities started
- 1964 The company again awarded the Deming prize
- 1965 Process computers introduced to control quality
- 1973 Establishment of the quality assurance system (soon followed by overseas product approvals)

And in the U.K. and Europe . . .

The military standards from the USA also became the basis of the development of UK defence standards covering quality systems (DEF 05-21, DEF 05-24 & DEF 05-29), as well as of NATO Allied Quality Assurance Publications. Over time, these were incorporated and released by the British Standards Institute as British Standard 'BS5179: Guide to the Operation and Evaluation of QA systems'. In the late 1970's this was updated to 'BS5750: Quality Systems'.

What about Oz?

Based on the NATO and British DEF standards, the Australian Standards AS1821, AS1822 and AS1823 were issued in 1975, followed by an accompanying guide to their interpretation and application (AS2000) in 1978. AS1823 was the most basic of the three, and was applicable for situations when conformance to Customers' requirements could be established by inspection alone (this mirrored MIL-I-45208A). AS1822 was more comprehensive, incorporating AS1823 and also providing for quality control in the production processes to ensure that inspected products complied with the Customers' requirements. AS1821 was the most comprehensive of the three, covering everything in AS1822 and including

both the design function and post-delivery services. It was applicable when the Customers' requirements were expressed in terms of performance rather than objective specifications, and product specifications had to be developed to meet the Customers' requirements (this mirrored MIL-Q-9858A).

This series was updated in 1985, to incorporate aspects of BS5750, MIL-Q-9858, the Canadian CSA Z 299 Quality Program Standards, and the draft International Standards DP 9000, 9001, 9002, 9003 and 9004.

An Australian version of the Canadian standard was released in 1987 as 'AS2990: Quality Systems for Engineering and Construction Projects'. This mirrored the AS1821-1823 series. It was, however, considered more suitable for project industries, such as construction and infrastructure development, whereas the AS1821-1823 series was considered more manufacturing focussed. At this stage the approach was still very much oriented towards physical goods - services were not widely considered in terms of modelling a documented quality system.

Such was the scene in 1987 when the first series of international standards was released. More about those in the next chapter.

However, before finishing, it is worth mentioning that while international standards were being further developed, the scene was also being complicated by various Customer bodies developing their own purpose-built standards, tailored to their specific industries' needs.

Software Standard

Perhaps the only exception to the focus on manufacturing was the emergence of "AS 3563: Software Quality Management System" in 1988 (updated in 1991). It was an extension to the AS 1821-1823 series and described in comparative detail the kind of system that should exist to ensure a computer software development contract was successfully carried out.

A notable example is the Ford World-wide Quality System Standard Q101, which incorporated much of the previously-mentioned standards. This was ultimately developed into the QS-9000 standard by a consortium from Ford, Chrysler and General Motors in the USA. It was first released in 1994 and has subsequently been endorsed by a broader group of passenger vehicle and truck manufacturers world-wide. It has ISO 9000 as a subset and leans heavily towards a prescriptive automotive system approach to quality planning and statistical control of processes.^(4,5,6)

Chapter 5 - Key Points

- Quality Standards have their origins thousands of years ago;
- Standards as we know them can be traced back to US military standards of around 1950;
- Standards were developed individually in a number of countries, the Japanese approach being somewhat different from the others;
- Until relatively recently, quality standards focussed heavily on manufacturing;
- The first international quality standard was released in 1987. This story will be picked up in the next chapter;
- Developments of industry-specific standards continues, a notable example being QS-9000.



1. *“China’s Ancient History of Managing for Quality”*
by Joseph M Juran;
Part 1: Quality Progress, July 1990
Part 2: Quality Progress, August 1990

“Ancient Process Control and its Modern Implications”
by Q R Skrabec, Quality Progress, November 1990
2. There is an interesting letter on the subject of the currency of MIL-Q-9858A in Quality Progress, April 1994, page 6.
3. ‘StandardsMark’ is a trade mark which can be applied, by arrangement with Standards Australia, to products which have been verified as meeting all of the requirements of the standards relevant to that product. There also needs to be evidence of ongoing systems to ensure continued compliance. Examples are all around you: bicycle helmets, car windscreens, potting mixes, etc.

4. Quality System requirements - QS-9000. Third edition, 1998.
5. QS-9000 refers to a number of 'Continuous Improvement' tools. In fact these are mostly high-level Management tools. The following book provides an introduction to all the tools mentioned in QS-9000:

"The QS-9000 Continuous Improvement Handbook"

By Jo Kruithof, Frank Mapperson, Jeff Ryall & David Scott
QI Publishing Company, 1997 ISBN 0 646 331590

Enquiries: **books@qualityinsights.com.au**

More details at: **<http://www.qualityinsights.com.au/books.html>**

6. Another useful book dealing with QS-9000 experiences:

*"QS-9000 - A Practical Self-help Guide
(Experiences of Australian Companies)"*

By David Scott and Jeff Ryall

NIETL Automotive Best Practice Network, 1999, ISBN 0-9577250-0-0

Enquiries: **jryall@qap.com.au**

Practice makes perfect?

*"Inspection, measuring and test equipment ... shall be checked ...
at established periods to assure continued accuracy"* - US
Military Standard MIL-Q-5923, **8 Dec 1950**.

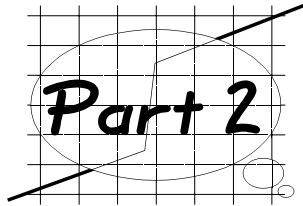
*"...our top toolsetter was concentrating solely on the AS3902
audit and accreditation. His first job was to do the
calibrations of our measuring equipment, which took about
six weeks."* - 'The Costs of Quality', Business Review
Weekly, **31 Jan 1994**.

More than forty years of practising quality and we still can't get it right? The problem is that practice makes permanent. Practice makes perfect only if we practise perfection.

A personal Reflection

During the writing of the note about software quality management, Jeff recalled an experience which clearly illustrates how software development programs can become hopelessly out of control, if updates and version tracking are not handled well, and if there is no testing to clearly defined functional specifications. He was brought into a software development program at fix number eleven hundred and something. They desperately needed help to contain the escalating problem: each live fix generated several problems in other places on the user interface, creating chronic Customer service problems. Well-defined procedures and disciplines would have saved untold time and money, not to mention the effect on the overall quality of the product.

The application of simple controls to modification, version tracking, change records and validation stopped the problem in a matter of days.



The ISO 9000 Standards for Quality Systems

*"Be wary of the person who has the answer.
Instead, seek the company of those who understand the question."*

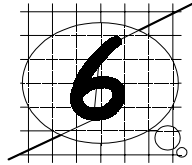
Billy Conolly

A sobering Thought to start with

Note that the standards talk about an 'adequate' level of control. This is a far cry from 'world-class', 'highest accolade', and other hyperbole often used by newly certified companies to promote their achievement.

In THE QUALITY MAGAZINE of April 1994, Michael Clarke and Asle Stromsvag write:

"Good companies don't meet standards, good companies set standards. Any certification will only tell you, your Customers and other stakeholders that your systems met a set of minimum standards at some point in time as judged by someone or some organisation that was accredited to do so. Is this an adequate situation for a progressive, market-leading company?"



The International ISO 9000 Standards

*“Not chaos-like, together crushed and bruised,
But, as the world harmoniously confused;
Where order in variety we see,
And where, though all things differ, all agree.”*

Alexander Pope: ‘Windsor Forest’

By the mid-1980’s there was quite a range of similar, although different, emerging standards, and in a number of countries, other than those mentioned, work was also under way to develop national quality system standards.

The International Organisation for Standardisation (ISO) is based in Geneva and comprises the various member countries’ national standards bodies, such as Standards Australia (SA), the Standards Association of New Zealand (SANZ), the USA’s National Institute of Standards & Technology (NIST) - about 130 in all. In anticipation of these world developments, ISO had already established a working group (Technical Committee ISO/TC 176) in the late 1970’s. Its purpose was to co-ordinate the development of an internationally accepted set of quality system standards, in order to improve the fairness and ease of world trade.

The ISO 9000 Series from 1987 to 2000

This culminated in the release of the ISO 9000 family of standards in 1987. These were based on, and drew together, the best of the standards then available. This ‘compendium’ of some 20 standards and guidance documents gained rapid world-wide acceptance. Many countries accepted it into their own standards systems, often re-labelling it to suit. In Australia’s own case, they were referred to as the AS 3900 family, renamed in September 1994 as the AS 9000 family. Throughout this book we use the ISO nomenclature.

The basic series of ISO 9000 standards published from 1987 up to 2000 consisted of 5 documents:⁽¹⁾

- ISO 9000 dealing with selection and application of the series;
- ISO 9001 for contractual/certification situations involving design/development and product creation;
- ISO 9002 for contractual/certification situations involving product creation to an agreed specification, and in which the ISO 9001 section on design control (4.4) did not apply;
- ISO 9003 for contractual/certification situations when confidence in an inspection system was required. In this standard, the sections of ISO 9001 on Design Control (4.4), Purchasing (4.6), Process Control (4.9) and Servicing (4.19) did not apply – because product validation was by inspection alone, not by process management.
- ISO 9004 dealing with the principles of proper management of quality of goods and services, to meet Customer, as well as other stakeholders' needs.

The Current ISO 9000:2000 Series

In the year 2000, the standards were updated and replaced with a revised set of documents, in which the 9001-9002-9003 standards were collated into a single document, ISO 9001. The current core set of ISO 9000 standards now consists of:

ISO 9000:2000 Quality management systems - Fundamentals and vocabulary

This is an introductory document, which explains what the standards are about, and also provides some definitions for the various terms you will encounter in the standard. This can be particularly helpful to gain an insight into what is meant when you use the other documents.

ISO 9001:2000 Quality management systems - Requirements

This standard is used when you need to show how you exercise control of your internal processes to meet

Customer and regulatory requirements, to satisfy your Customers. Its focus is only on Customers, and it is the only standard in the series for which you can obtain quality certification.

ISO 9001 is concerned with effectiveness: your achievement of desired results.

ISO 9004:2000 Quality management systems - Guidelines for performance improvements

This is a guide, or reference document, that focusses on ‘doing things properly’ when it comes to applying quality from a larger perspective in your organisation. It focusses not only on Customers, but also on meeting the needs of other interested parties, or stakeholders.

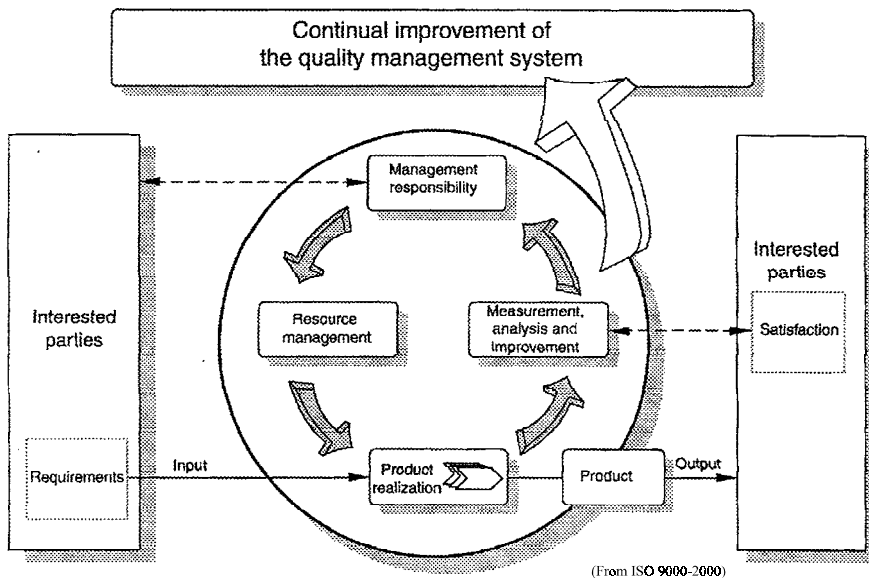
ISO 9004 is concerned with both effectiveness and efficiency: your effective and efficient use of resources to achieve desired results.

ISO 9001 and 9004 are consistent in their layout and structure, so that you can easily compare their contents and create a system with internal consistency. ISO 9001 has also been designed to be consistent with the environmental management standard ISO 14001 so you can more easily integrate their requirements. (More on that in Chapter 13).

There is a range of other support documents that complement these core standards: if you are interested in exploring them further, you will find the list (current at the time of publication) in Appendix 1.

ISO 9000
An International Quality Language

Currently, the ISO 9000 family of standards is accepted as national standards in over 130 nations, including all industrialised countries. Thus they have become truly international standards for quality system management. In fact, the products associated with the ISO 9000 series form ISO's largest single income generator.



The 1994 version of ISO 9001 was arranged in twenty separate elements. Each element needed to be addressed in a documented (although not necessarily separate) procedure. Instead, ISO 9001:2000 and 9004:2000 are organised into a process structure as shown above. At the input end, Customer requirements are identified and input to the system. At the output end, products are delivered and Customer satisfaction determined. Over all of this, like an umbrella, there is a framework of continual improvement. In between sit the five main sections, detailing requirements and guidance information. These five sections are:

- **Section 4: Quality management system.** This covers the things that need to be done to ensure the basic integrity of the system. It includes an overall description of what management need to attend to, and documentation requirements, including requirements for document control and control of records.
- **Section 5: Management responsibility.** This addresses the key management accountabilities for the organisation to have effective frameworks in place for Customer focus, policy, organisational objectives, planning, accountabilities, communications and regular review. This occurs within an environment of commitment by management.
- **Section 6: Resource management.** The organisation needs to be resourced with competent people, an appropriate work environment, and all of the necessary physical infrastructure and services.

- **Section 7: Product realization.** This represents the core of the standard, and describes the various controls that need to be in place to manage the value-creation processes, from Customer contact, purchasing and design, through production and service provision to delivery, and beyond if appropriate. It also includes management of measurement equipment.
- **Section 8: Measurement, analysis and improvement.** The various activities that fall into this group are measurement of processes, products and Customer satisfaction; control of nonconforming product; internal audit; analysis of data to assess performance; and the improvement processes, including corrective, preventive and continual improvement actions.

We will explain the requirements of ISO 9001 more expansively in Chapters 8-10. The revision of the ISO 9000 standards resulted in some significant changes and if you are interested in a summary of this aspect of the requirements, you can find it in Appendix 2.

Classic corrective action system

1. *Who's fault was it?*
2. *{Whack!} Don't do it again!*

Steve Nesbitt

So, where is ISO 9000 coming from?

The whole philosophical basis of the ISO approach has been explained in various publications over the years ⁽²⁻⁶⁾. The following key points summarise them:

- The identification of 'stakeholders': Customers, employees, shareholders, suppliers and society at large, each with differing requirements.

Although the ISO 9000 series primarily focuses its guidance and requirements on satisfying the Customer, Organisations should seek to balance and meet the expectations and needs of all their stakeholders. We'll have more to say about this later on in the book.

- The concept of processes as the means by which all work is accomplished in organisations.

Stakeholders' needs are met when the processes which add value to inputs to create the desired outputs are properly managed - in other

words, quality management both of the process itself and of the goods and services that flow through it.

- The need to understand the complex network of processes in organisations so that they can be properly identified, organised, managed and interfaced.

ISO 9000 suggests you don't try to deal with all your processes at once. It encourages you to identify your main processes first and then to analyse, simplify, and continually improve them. We'll talk about this in more detail later on.

- The concept of process ownership.

As processes need to be managed, the standard suggests that key people be identified in the organisation to oversee each process and accept accountability for its management and outcomes.

- The role of Quality Systems as a means of managing this network of processes.

The standard suggests that co-ordination and interfacing of processes be achieved through defining and implementing responsibilities, authorities, procedures and resources.

- The value of process documentation.

ISO 9000 recommends that documentation is essential to help guide the achievement of product quality, to evaluate the integrity of the system, to support and maintain quality improvement and to manage and support training.

It is also interesting to note that ISO has identified two motivations for developing quality systems: ***'Stakeholder Motivation'*** and ***'Management motivation'***.

"There is no surer way to misread any document than to read it literally."

Learned Hand (US jurist, 1872-1961)

Stakeholder Motivation

Here we are talking about the situation where an organisation's management responds to Customer (or other stakeholder) demands by implementing the requirements of ISO 9001. In the past, there has been a tendency to opt for the stakeholder-motivated approach, often in response to demands from Customers for certification. In many cases this leads to the perception that certification to ISO 9001 is a burden - a cost without corresponding benefits. Often the employees carry this burden most heavily. The problems associated with taking the 'fast path to nowhere' described in Chapter 1 are all too apparent.

ISO therefore has held the view that the 'stakeholder-motivated' approach is not the preferred way of developing quality systems. Instead, they espoused the view that taking the ISO 9004 route is the better approach. ISO 9004 takes a more holistic view of the enterprise and incorporates the requirements of ISO 9001 to satisfy those Customers who want to see evidence of an adequate level of control. The 9004 approach takes a broader view of both the enterprise and its quality framework and is more likely to result in demonstrable benefits.

Management Motivation and ISO 9004

'Management Motivation' refers to the situation where an organisation's management sees the strategic advantage and benefits to the organisation of developing an efficient and effective quality system based on ISO 9004.

The base document is **ISO 9004: Quality management systems – Guidelines for performance improvements**. This document is generic in nature and is intended to be the starting point of developing a quality system modelled upon The Eight Principles of Quality Management contained in the ISO 9000 series. (More on these in the next chapter). Its emphasis is on the most appropriate way to implement a quality system and manage quality for the benefit of the whole organisation and all stakeholders through process improvement, and achievement of Customer satisfaction.

Another sobering Thought

At a Quality Conference early in 1994, UK consultant Steve Nesbitt had this to say about the standards:

"ISO 9000 is probably one of the worst things that has happened to industry in the last few years - not because it isn't an excellent concept, but because most companies don't do it properly, or do it for the wrong reasons".

The Importance of Process Ownership

During an audit of the design function in a textiles plant, Jeff noticed that the design checklist had not been completed, because the design team had not met together. They had each done their work in isolation. As a result, problems had 'slipped through' and key documents had not been controlled or shared.

Who was responsible for convening the design team meetings?

According to procedures, the design team itself. When everyone is responsible, often the result is that no one is responsible. This process needed a process owner.

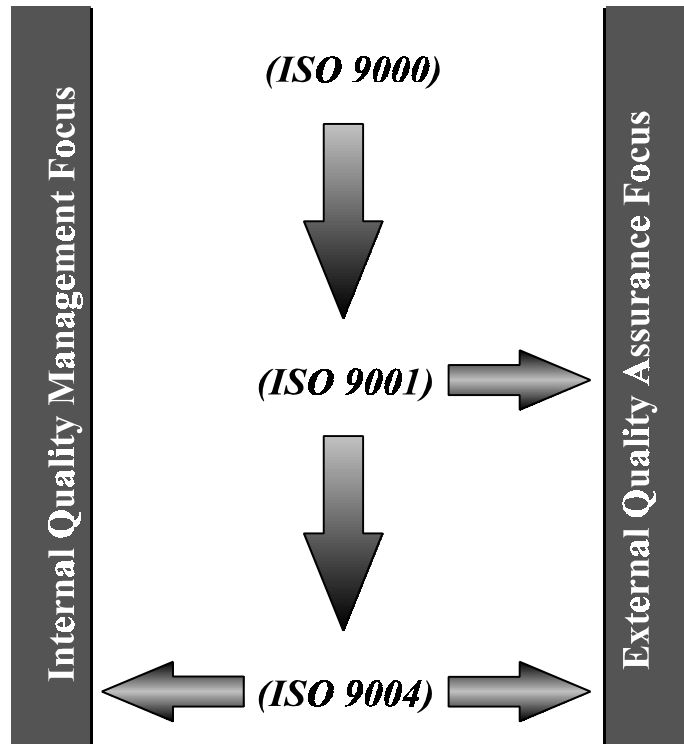
Its approach to standardisation is therefore most clearly compatible with the principles of the business excellence frameworks (which are discussed in more depth in Chapter 20), particularly in the way all activities in organisations are regarded as processes with inputs, control systems, outputs and feedback systems. There is a strong emphasis on planning and preventative action - that is, on doing things properly in the first place.

It has a broad business approach, beginning with the marketing function and flowing through all processes that affect and control product/service quality, to consideration of environmental impacts. Approaches to the financial reporting of the effectiveness of quality activities are also introduced. Resource management, product safety and workplace safety are all included. As a document intended for internal use and guidance, rather than for compliance purposes, it is quite descriptive in the way the various life cycle stages and organisational functions are covered. We expand on this in Chapter 11.

Realism or Idealism?

A practical alternative, although not mentioned by ISO until recently, is adopted by many organisations: the middle path of implementing 9001 for reasons of simplicity and industry acceptance, yet in alignment with the spirit of 9004. Certainly, almost every organisation we have known has taken the path of introducing ISO 9001 before ISO 9004 (if at all), so perhaps ISO has made a virtue out of necessity by now recommending this approach. Nonetheless, the approach does work, and organisations do reap measurable rewards when ISO 9001 is implemented first, with a Management Motivation ethos supporting it.

This is illustrated below, to show how these two approaches to the use of the various ISO 9000 standards can be applied. The horizontal arrows indicate a primary focus. This diagram is adapted from 'Vision 2000', published by Standards Australia⁽²⁾.



The main message is that it is most important to sort out 'correct' thinking about quality and apply it properly in your organisation, rather than to develop an approach for external compliance only. In practice, this can be difficult to achieve in organisations which are attempting standardisation of their product or service delivery systems for the first time. The reason is that there is often no existing framework in which to integrate the guiding Principles.

ISO 9001 and 9004 have now been harmonised and are based on a single process model. This, together with the Eight Management Principles, is consistent with Business Excellence Frameworks. Thus a pathway is created for organisational learning and development: Establish a basic ISO 9001 quality management system to focus on Customer satisfaction; expand it by embracing the guidance of ISO 9004; then go on to pursue organisational excellence in line with Business Excellence Frameworks.

"The Road to Success is paved with good Information".

Riaz Khadem & Robert Lorber

ISO provides the following summary⁽⁷⁾, which we have reproduced here to help bring the whole matter into perspective:

	ISO 9004's prime focus is QUALITY MANAGEMENT	ISO 9001's prime focus is QUALITY ASSURANCE
<i>The purpose is...</i>	<u>Achievement</u> of quality-related results	<u>Demonstration</u> of achievement of requirements for quality
<i>The motivation is...</i>	Stakeholders <u>internal</u> to the organisation, especially the organisation's management.	Stakeholders <u>external</u> to the organisation, especially Customers.
<i>The goal is to...</i>	Satisfy all <u>stakeholders</u>	Satisfy all <u>Customers</u>
<i>The intended result is...</i>	Superior overall <u>performance</u>	<u>Confidence</u> in the organisation's product
<i>The scope covers...</i>	All activities that impact the <u>total business results</u> of the organisation.	Activities that directly impact <u>process and product results</u>

In this chapter, we've given you the essence of the ISO Quality Standards. In the next chapters we'll elaborate on this, to make them look and feel more real and meaningful.

Chapter 6 - Key Points

- The basic series of standards first issued in 1987 consisted of five documents: ISO 9000 - ISO 9004, with 9002 and 9003 being special versions of 9001 and the latter being arranged in twenty separate elements;
- The basic year 2000 set consist of three main documents: ISO 9000, 9001, and 9004;

Finger on the Pulse

The CEO of a large furniture manufacturing company told Jeff that he had asked the Board for funding to implement ISO 9001 in the Company. "I told them that I needed it as a management tool". He saw it as a way of ensuring that everyone in this big organisation worked in a co-ordinated, directed manner.

- ISO 9001 and 9004 are consistent in structure - 9001 can be seen as a subset of 9004 and is actually embedded within it;
- The twenty-element structure of previous 9001 versions has been replaced by an structure that reflects an increased focus on the process approach;
- The basic philosophy of ISO 9000 revolves around the recognition of stakeholders, an understanding of process concepts, a system approach to management and the roles quality systems play in this, the concept of process ownership, and the value of process documentation;
- This philosophy is also summarised in ISO's 'Eight Principles of Quality Management' which will be discussed in the next Chapter;
- ISO identifies two 'motivations' for developing systems: Stakeholder motivation and Management motivation;
- Stakeholder motivation is driven by Customer or other stakeholder demands;
- Management motivation is driven by an organisation's desire to achieve strategic advantages with continual improvement;
- Many organisations achieve successful and beneficial implementations of Quality Systems by implementing ISO 9001 within the philosophy of ISO 9004.
- A recommended path for beneficial organisational development is (1) implement a basic ISO 9001 quality management system, (2) expand this to embrace the principles of ISO 9004, and (3) pursue organisational excellence using a globally recognised Business Excellence Framework.



1. We decided not to reference standards at the end of each chapter in which they get a mention. You can check out the latest status of standards at the Standards Australia website:
<http://www.standards.com.au>.
2. *"Vision 2000 - A strategy for International Standards implementation in the Quality Arena during the 1990's"*.

This is an article adapted from the Ad Hoc Task Force ISO/TC 176, and was published by Standards Australia (1993).

3. ISO 9000-1:1994 *'Guidelines for Selection and Use'*
4. *'Selection and Use of ISO 9000'* - ISO, 1988.
5. *'Selection and Use of the ISO 9000:2000 family of standards'*
ISO, 2000. (Available from the ISO Online website at
<http://www.iso.ch>)
6. Document No. ISO/TC 176/SC 2/N 544R *'ISO 9000 Introduction and Support Package: Guidance on the Process Approach to quality management systems'*.

Available from ISO TC/176/SC2 Home Page at
<http://isotc176sc2.elysium-ltd.net/>. Some people have reported corrupted diagrams in this version. If you have this problem, another version is available via the ISO home site, or directly at
<http://www.iso.ch/iso/en/iso9000-14000/iso9000/2000rev9.html>

7. Document No. ISO/TC 176/SPAG/N90 (15.6.1995):
Updated Vision 2000 For The ISO 9000 Family'

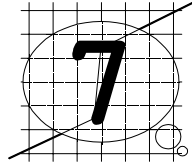
Three great offers of our time:

"Come up and see me sometime"

"You can have Alaska for two cents an acre"

"ISO 9000 will solve all your quality problems"

Stewart Horwood



A Matter of Principle- The Building Blocks of the Quality Model

“Any problems we might face in the understanding and implementation of quality management are of our own making and are not, in any way, attributable to its philosophy, principles and techniques.”

Kevin Foley

Introduction

ISO defines a Quality Management Principle as follows:

“A Quality Management Principle is a comprehensive and fundamental rule or belief, for leading and operating an organisation, aimed at continually improving performance over the long term by focussing on Customers while addressing the needs of all other stakeholders”⁽¹⁾

Many thinkers, speakers and writers have tried to summarize what quality is about in the form of sets of principles or lists of points. Perhaps the most famous list is that of Deming’s fourteen points, and many contemporary lists can be traced back to this.

One of Deming’s interpreters is Myron Tribus who presented a set of principles to the then TQMI (Total Quality Management Institute) here in Australia, back around 1989. In the absence of anything superior these were adopted as the ‘Principles of Contemporary Quality’ underpinning the Australian Quality Awards Criteria (now the Australian Business Excellence Framework or ABEF). They have stood the test of time reasonably well, but obviously needed development and this has been an evolutionary process over the years.

Comparing the ISO 9000:2000 principles, formulated in 1997, with the 1994 version of the Australian Quality Council's principles⁽²⁾ shows many similarities. A comparison with the 2001 ABEF principles⁽³⁾ illustrates the development that has taken place. The table starting below shows the eight principles of ISO 9000:2000 in the left-hand column. The middle and right-hand columns show summarised versions of the Australian Framework principles of 1994 and 2001 respectively, arranged as much as possible according to their equivalence to the ISO principles.

ISO 9000:2000 Principles of Quality Management (published in 1997)	AQC - 1994 Key Concepts of Quality	AQC - 2001 Principles underpinning the Australian Business Excellence Framework
<ul style="list-style-type: none"> • Understand current & future Customer needs, meet requirements, exceed expectations 	<ul style="list-style-type: none"> • The Customer plays the central role in the definition of quality 	<ul style="list-style-type: none"> • Understanding what Customers value
<ul style="list-style-type: none"> • Leadership for unity of purpose and direction 	<ul style="list-style-type: none"> • Leadership to create and deploy clear values • Planned and structured approach to achieving goals & objectives 	<ul style="list-style-type: none"> • Clear direction, organisational alignment, focus on the achievement of goals • Mutually agreed plans to translate direction into action • Senior Leadership as role models and providers of a supportive environment
<ul style="list-style-type: none"> • Involvement of People to make full use of their abilities 	<ul style="list-style-type: none"> • Fully involving and developing the organisation's people 	<ul style="list-style-type: none"> • Realise organisational potential through its people • People work within a system - outcomes are improved when people work on the system

<ul style="list-style-type: none"> • Manage resources and activities as a process 	<ul style="list-style-type: none"> • Quality derives from well planned and managed processes • (Management emphasis is on prevention and improvement rather than reaction) 	<ul style="list-style-type: none"> • To improve outcomes, improve systems and processes
<ul style="list-style-type: none"> • Understand and manage systems of interrelated processes 	<ul style="list-style-type: none"> • Management emphasis is on prevention and improvement rather than reaction 	<ul style="list-style-type: none"> • To improve outcomes, improve systems and processes • (People work within a system - outcomes are improved when people work on the system)
<ul style="list-style-type: none"> • Continual Improvement as a permanent objective 	<ul style="list-style-type: none"> • Continual improvement is part of the management of all processes • Innovation is an essential adjunct to continual improvement 	<ul style="list-style-type: none"> • Continual Improvement and Innovation depend on continual learning
<ul style="list-style-type: none"> • Effective decisions are based on analysis of data and information 	<ul style="list-style-type: none"> • Management by appropriate facts and data 	<ul style="list-style-type: none"> • Effective use of facts, data and knowledge
<ul style="list-style-type: none"> • Mutually beneficial Supplier Relationships to enhance ability to create value 	<ul style="list-style-type: none"> • The organisation and its suppliers work in partnership 	<ul style="list-style-type: none"> • Create and deliver value for all stakeholders
	<ul style="list-style-type: none"> • An understanding of variation 	<ul style="list-style-type: none"> • All systems and processes exhibit variability
	<ul style="list-style-type: none"> • Community and Environmental responsibility 	<ul style="list-style-type: none"> • Community and society awareness
	<ul style="list-style-type: none"> • Standardisation is part of process management 	

"All models are wrong but some are more useful than others".

W E Deming

It seems to us that the ISO principles encompass most of the things that matter, although the way they are stated hardly reflects the dynamism of

contemporary quality thinking. This is perhaps not surprising as they would have been formulated through a consensus process that takes several years.

However, a glaring omission is the issue of variation. It doesn't rate a mention, yet if there is one principle of quality management that underpins everything else it's a **thorough understanding of the concept of variation** and the vital role it plays in the achievement of quality.

Before looking at these principles in a little more detail, we need to point out that ISO 9001 does not actually reference these eight principles specifically, although you can find them embedded throughout the document. This is shown in Appendix 3.

The ISO document "*Quality Management Principles and Guidelines on their Application*"⁽¹⁾ lists the eight principles as well as the actions that could arise, and the benefits that could accrue, by applying each principle. However, it does not explain what the principles actually mean or involve. So let's have a brief look at this. There will be some overlap with Part 4 of this book, but we don't apologise for that - the issues are important enough to bear repeating!⁽⁴⁾

Principle 1 - Customer-focussed Organisation

"Organisations depend on their Customers and therefore should understand current and future Customer needs, meet Customer requirements and strive to exceed Customer expectations".

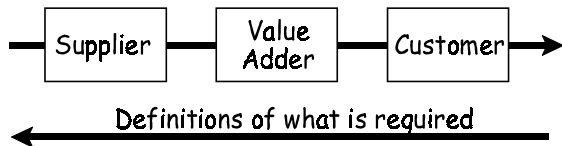
There are at least four aspects to becoming Customer-focussed:

- Find out who your Customers are;
- Find out what they need and want - in *their* language;
- Learn to translate their language into yours;
- Conduct ongoing dialogue, to keep up with ever-changing requirements and expectations.

A prerequisite for all of these is to be quite sure that we know what a Customer is, exactly.

The Value Chain

Few people would have difficulty identifying Customers as those who receive (and usually pay for) the goods and services their company



provides. We've already quoted one of Deming's favourite sayings: "*No Customers, no orders, no jobs*". However, the concept of the *internal* Customer is still not universally understood. It is nevertheless an essential part of understanding Continual Improvement. Basically it's very simple: Everyone works in a number of processes (more about this in following chapters) and at every stage in every one of these processes they have three roles: those of Supplier, Value Adder and Customer, as shown in the diagram, (which is a simple version of Porter's Value Chain⁽⁵⁾).

The things you work on come from somewhere. To do your job properly, you need to be able to communicate your needs and wants to whoever gives you your input. Similarly, this person or persons cannot do their jobs properly unless they know what *you* need to do yours: a typical supplier/Customer relationship even though it is inside the process, inside the organisation.

Your job now is to add value in some way (*if you're not adding value, why does your job exist?*). To do this effectively you have to know what happens to the work after it leaves your hands. Whoever gets it next needs to be able to tell you what *their* needs and wants are - another typical supplier/Customer relationship.

In other words, everyone *serves* a Customer and everyone *is* a Customer. As the process proceeds stage by stage in one direction, definitions of what is required move the other way, from the last stage to the first. These 'definitions of quality' ensure that the process produces the best end-result of which it is capable.

Most inefficiencies occur where processes cross internal boundaries in the organisation. This is sometimes referred to as 'silo thinking' - each organisational unit is like a silo, self-contained and with very limited scope for transfers between them.

"We believe that you can't add value unless you have values to add."

Anita Roddick

Identifying the Customers

A major difficulty in taking this principle on board is that it is often hard to identify who and where all one's Customers are. In the case of external Customers it seems straightforward. For example, a car manufacturer's Customers would seem to be the people who buy and drive its cars. However, in many cases, the manufacturer's sales department doesn't see it that way. They sell to dealers, and as far as they are concerned, the dealers are their primary Customers.

In the case of internal Customers, it can also be quite confusing. We are all involved in a number of processes. Someone who is a Customer in one process, or part of a process, may be a supplier in another. For example, if you give someone a manuscript for word-processing, the efficiency and effectiveness with which the process takes place, and the quality of what they come back with, will be partially governed by the quality of the input (handwriting, punctuation, etc) you gave them to work with. As with all 'Customer-supplied product' situations, you are both the end-Customer of the process, as well as a supplier at the beginning of that same process.

It all becomes a lot easier if, in addition to being Customer-focussed, you are also process-focussed (see Principle 4). Identifying your Customers becomes much clearer if firstly you identify all the various processes in which you

"If the Customer tells you what would delight them, it may be too late - they know because they've seen someone else already doing it".

Tostain

play a part. Then, sticking to one process at a time, identify the suppliers and Customers of each in turn. It is almost always easier to identify the Customers of a process than the Customers of a person or other entity.

Speaking 'Customer-speak'

Being Customer-focussed also means realising that the language of the Customer and the language of your organisation are two different things. For instance, a user of face cream may think of quality in terms such as 'not shiny', 'smells nice', 'doesn't run in hot weather', 'easy to apply', 'makes me feel good', etc. To technologists in the cosmetics industry this can all be very vague. They think in terms of moisture content, softening point, ppm of various additives, etc. But you can't go out to the Customers and ask them questions like: "If we were to produce a new face cream, how many ppm of perfume TN6 should we put in it?" Being Customer-focussed means letting the Customers speak in their own language and being able to 'translate' this into the language you need to define your process intent.

For Better or Worse??

Although the ISO definition of Principle 1 includes the phrase “...strive to exceed Customer expectations”, you need to be careful about this. We’ve previously mentioned the case history of a chemical company that increased the purity of one of their products. This product was a raw material for one of the Customer’s manufacturing processes. The Customer, instead of being pleased, was mightily upset, as their whole process was geared to the previous purity level and could not handle the new ‘improved’ product!

‘Customer Focus’ also means consulting Customers about anything that might affect them!

Finally, while being Customer-focussed clearly involves a lot more than just handling complaints well, many otherwise Customer-oriented organisations let themselves down badly in this aspect. It is well-known that a great recovery from a problem can create an even better Customer perception than perfect delivery in the first place (although creating such situations deliberately is not recommended!).

The Point of this Principle

- By gaining (and keeping up-to-date) as complete a knowledge as possible of the whole spectrum of Customer needs and expectations, all aspects of Customer relationship management are facilitated and can be continually improved;
- By identifying the Customers and their needs (and in the process, the needs of other interested parties), these needs can be clearly disseminated and understood throughout the organisation. This, in turn, facilitates the formulation of policies and strategies and allows goals and targets to be set that are in alignment with Customer needs and expectations;

Today’s Surprise - Tomorrow’s Expectation

There is another reason why you need to be careful about exceeding expectations: The exceeded expectation becomes the new standard. So don’t do it unless, henceforth, you can always do it!

- In the bigger picture of the business, this allows alignment of all forms of management - operational and functional;
- Being Customer-focussed enables us to hear them, especially when there are problems.

Principle 2 - Leadership

“Leaders establish unity of purpose and direction of the organisation. They should create and maintain the internal environment in which people can become fully involved in achieving the organisation’s objectives”.

Organisational Success

If the leadership of an enterprise is to establish unity of purpose and direction, it is necessary for them to know where the organisation wants to be. The organisation must know and understand what it means by ‘organisational success’ and this is likely to be different for different organisations. One enterprise may define it rather narrowly as ‘Continuous Customer Satisfaction’. Another might define it more broadly and idealistically as ‘Ever-increasing Stakeholder Delight’. Whatever it is, it must be clearly understood - and not only at the organisational level. Each *individual* must also understand organisational success and how it is interpreted in their particular sphere of influence. Specifically, in process improvement activities, the individuals involved will have to work out how organisational success translates into a definition of success for the process being worked on. It is easy to fall into the trap of defining improvements as cost-cutting, or becoming more efficient, or being more effective. But unless it is understood how success is defined overall, and what and how the particular process contributes to it, a ‘process improvement’ might not be in the best interest of the enterprise as a whole. It is a function of leadership to see that this doesn’t happen.

Leadership for Excellence and Continual Improvement

One of the keywords of leadership is ‘commitment’. However, this is not enough on its own - it must be translated into action, it must be real, and it must be visible. It starts with a vision of what the organisation will look like, how it will run and what it will do at some time in the future. True leaders

know how to *inspire* this vision, ensure that it is shared by everyone at all levels, and engage everyone in its achievement.

Whereas management is a function to ensure that whatever already exists is run and used as well as possible, leadership is a function that continually challenges processes and systems and encourages others to do so - leadership is not only for those at the top, but a kind of culture in which everyone takes part.

It is easy to look like a leader. As someone said: *“To look like a leader, just find a parade and walk in front of it”*. True leaders walk the talk, to use a well-worn cliché. They do what they expect others to do. They practise what they preach. They communicate and stay in touch with the people they lead. People are convinced by what they see their leaders doing, not by hollow rhetoric.

All of this applies across the organisation. It is not only for those at the top - leadership awareness is practised at all levels. Senior executives work in teams to improve processes, the same as they expect others to do. They use the tools and techniques of quality and continuous improvement, and insist that others do so too.

Leaders demonstrate their commitment to process focus by going around asking process-focussed questions (this links to Principle 4) and by encouraging ‘vertical’ and cross-functional teams. They also know how to encourage people by appropriate rewards and recognition. In a sustainable environment of excellence and improvement, rewards and recognition are designed to encourage behaviours that are conducive to attainment of the vision, are almost always team-based, and are rarely merely monetary hand-outs. Instead, the emphasis is on recognising the worth of people, by reminding them how important they are to the organisation and its strategic objectives.

In short, as Kouzes and Posner say in their book ‘The Leadership Challenge’: *“Good leaders challenge the process, inspire a shared vision, enable others to act, model the way, and encourage the heart”*.⁽⁶⁾

*“A candle sheds its light best
when it leads the way”.*

Dutch proverb

Leadership Focus

Vilfredo Pareto (1848-1923) was an Italian sociologist who reported, amongst other things, that eighty percent of the wealth in Europe was in the

Theory and Practice

*The ISO description of Principle 2 contains the phrase ‘...create and maintain the internal environment in which people can become fully involved...’. We feel leadership needs to go further than that. **There is not much point in creating and maintaining an environment for involvement unless you also teach people how to do that; i.e. what ‘being involved’ means and how to go about it.***

hands of twenty percent of the people. This finding gained greater appreciation and currency through other people, such as Joseph Juran, when it was discovered that it applies to many other things in daily life. We now know it as the Pareto Principle or the 80/20 Rule.

A term not so widely used is the *Pareto Mentality*⁽⁷⁾. By this we mean a frame of mind

where we continually make sure that we are applying our limited resources to the things that matter most. The catch is to know what ‘matter most’ means to you, in your environments.

And that’s where leadership comes in again. As we said, leaders ensure that they can define ‘Organisational Success’ and that everyone else in the organisation also knows what it is and how it applies to their part of the enterprise. Leaders know about the Pareto mentality, practise it continually, and ensure that it filters down to everyone, so that all people, in all their activities, are continually asking: “Are we working on the things that will make the biggest contribution to Organisational Success?” It is a leader’s responsibility not only to define and inspire the vision, but to ensure everyone remains focussed on achieving it.

In short, Leadership Focus is about two things:

1. Focus on the things that really matter strategically;
2. Engage people.

The Point of this Principle

- A clear, shared vision provides strategic direction and purpose, builds trust, and promotes open multilateral communication;
- Maintaining a focus on the vision and purpose leads to appropriate and challenging objectives and goals;
- Sharing the vision and its derived purpose, objectives, and goals leads to purposeful planning, empowerment and involvement, in which the needs and expectations of all those with a vested interest in the enterprise’s success are considered.

Principle 3 - Involvement of People

"People at all levels are the essence of an organisation and their full involvement enables their abilities to be used for the organisation's benefit".

It should not surprise anyone that 'Involvement of People' is one of the eight principles. An enterprise will stand or fall with its people. To sustain itself in today's dynamic environment, an organisation needs to be constantly adapting and continually learning. In addition, the distinguishing characteristics between businesses are increasingly service-based, and this places even more emphasis on the way people are involved in the organisation's value-adding and Customer-serving processes.

"Even the most rigid system, one that demands total conformity, cannot exist without the individuals that make it up. Without individuals, without individuality, there's nothing. Only through expressing yourself can you make a difference."

Dave Marinaccio

Knowledge and learning are gaining more and more emphasis as vital issues in the management of successful companies. Knowledge, learning and service are centred on people. It follows that the capacity and capability of an organisation to excel depends on the extent to which its people are involved and encouraged to contribute their intellectual capabilities to the enterprise.

People are the organisation and companies ignore this at their peril. When properly engaged, people will play an active role in the planning process, both at organisational level and for their own continuing development. In the right environment and with appropriate training they will be innovative and creative and maintain superior relationships with Customers and other stakeholders. They will be enthusiastic about their work and derive satisfaction from the knowledge that they are adding value.

"Today, the worth of a business is the knowledge and ability of the people who work for it."

John Schubert,
President of the Business Council of Australia,
The Age, 31 July 2001

*"We give our best to make each loaf a wondrous work of art...
Into our pies and all our cakes we pour our little hearts,
We've been getting better, ever better, since the day we came to be...
So onwards, ever upwards, soars our quest for quality!"*

The Bakery, Warrandyte, Victoria

People and Process Improvement

People are involved with the organisation's processes in many ways, but basically we can distinguish two separate roles. Firstly, people work *IN* processes, i.e. their everyday actions determine how well these processes run and contribute to the variation in process outcomes. These people are in a good position to identify improvement opportunities but are not often in a position to make major changes. However, in a quality-conscious organisation, access to those who can effect change is part of the environment: ideas for improvement filter up and leadership for improvement flows down. People are thus at the same time *part of* the process and *contributors to its improvement*.

Secondly, there are those who work *ON* the process, rather than in it. These are people at some level where they manage the overall process, but are not actually a part of it. Although they are usually not familiar with all the intimate detail of a process, they are in a position to make significant changes. Major improvement depends on their leadership awareness.

Another factor in process improvement is that Customer-serving processes don't usually follow the lines of the traditional hierarchy, nor are they confined to a single group or department. In addition, we have yet to see a process that can be described in accurate detail from start to finish by a single individual.

All of this adds up to the conclusion that process improvement activities need to be done by teams and that these teams must usually be cross-functional and cross-hierarchical.

The Point of this Principle

- People share ownership of the vision, mission and objectives and contribute effectively to formulating and continually improving policies and strategies;

- People are appropriately involved in the decision-making process;
- People are actively involved (and are supported) in their personal growth, in alignment with organisational growth and objectives.

Principle 4 - Process Approach

“A desired result is achieved more efficiently when related resources and activities are managed as a process”.

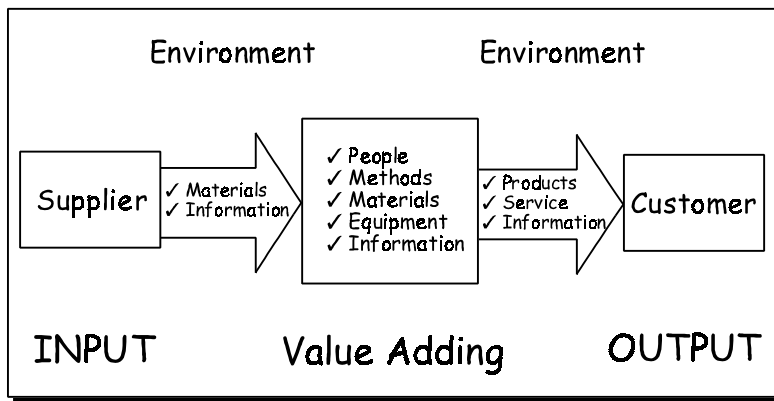
All outcomes, good and bad, are the results of one or more processes. Therefore, if we want to achieve or change a particular result, the way to do it is to identify and understand the process that creates that result.

As an example, consider cost-cutting - a fairly popular strategy in many organisations. It's not particularly difficult to trim a few dollars here and there. With a bit of creative juggling it's not even difficult to give the appearance of savings whilst actually increasing overall costs. However, unless the processes which produce these undesirable costs have been identified, understood and improved, the exercise will prove futile in the longer term. We have all seen this effect as a factor in the decline of a number of diversified manufacturing companies.

‘Process’ is a dynamic concept: something happens. A process has inputs, carries out transformations, and has outputs. And, as we said before, everything that happens - good or bad, planned or unexpected - is the outcome of one or more processes. To change outcomes, it is necessary to identify these processes (and their inputs), analyse them and then change them. (Note that ‘change’ is used in the broadest possible sense. In some cases it can mean ‘eliminate’!). It is also necessary to consider carefully the effect of changing (or eliminating) a process on the broader picture - this is part of Principle 5 as well.

*“It is good to have an end to journey toward;
but it is the journey that matters, in the end.”*

Ursula K. Le Guin



Process Components

Processes can be large or small, complex or simple, stand-alone or integrated. Some processes are well-defined and documented and proceed in a disciplined way. Many are not. In any event, processes are everywhere and continuously improving them is everyone's job.

The diagram shown above is an expanded version of the value chain used earlier. The fact that each stage in the process, as well as the transformations between them, have a number of readily identifiable components, provides a rich source of improvement opportunities. Inputs and Outputs have been associated with the notions of suppliers and Customers respectively. Note that we are once more talking about Value Adding as a vital characteristic of any transformation. After all, if the transformation created by a process doesn't add value, why does the process have to be there at all?

Process Characteristics

Focussing on processes means not only identifying them, but understanding them thoroughly. Because processes can be (and usually are) quite complex, there are often many aspects to explore. This means finding out such things as:

- The actual products or services delivered by this process;
- The external and internal Customers, suppliers and other stakeholders of the process, and their needs and expectations;
- The way quality is defined for all aspects of the process and how it is determined whether the quality criteria are being met;

- The measurements that are made and the records that are kept; the use made of these; the degree to which they are satisfactory and/or sufficient;
- The critical elements of this process, in terms of people, materials, ingredients, information, equipment, procedures, environment, etc;
- Where the responsibility for effective process operation is vested;
- The ways this process interacts with larger processes and systems of which it is a part and the ways the operation and the outcomes of the process interact with the environment.

Once all this has been worked out, it might be a good idea to document the process, for control, training and/or reference. More about this in upcoming chapters.

The Point of this Principle

- Process focus leads to reduced variation (and hence more predictable results), improved use of resources, and greater operational efficiencies and effectiveness;
- An understanding of process capability will allow better goal-setting, more meaningful service level agreements, more competitive specifications;
- A focus on processes will lead to genuine lasting improvements rather than apparent short-term improvements.

Principle 5 - System Approach to Management

“Identifying, understanding and managing a system of interrelated processes for a given objective improves the organisation’s effectiveness and efficiency”.

In a way, this Principle is an extension of Principle 4. Whereas ‘process’ is a dynamic concept (ie some transformation happens), ‘system’ is a static concept. Systems are (often complex) combinations of processes, together with an infrastructure in which those processes can do their jobs. Management systems are essential to integrate and manage processes to achieve strategic objectives, manage risks inherent in processes and apply due diligence.

"Whenever we try to pick out anything by itself, we find it hitched to everything else in the universe"

John Muir

As processes are always a part of some larger system (which, in turn, will be part of still larger systems, and so on), changes to a process (such as a process improvement) must never be made in isolation.

The effect that any change to a process may have on the larger system must be taken into account.

Perhaps one of the most dramatic illustrations in our own backyard of what can happen when an 'improvement' is made without understanding the whole of the system is the removal of trees to make way for cattle and wheat. We now have massive salination problems that may never be fully corrected. The world is full of 'it seemed a good idea at the time' stories like that - big and small. As Peter Senge said: *"Today's problems come from yesterday's solutions"*⁽⁸⁾.

Taking a system approach to management also means always managing all the parts in the light of their roles in the greater system - people, resources, processes, interfaces, relationships, ..., everything. In particular, it also means maintaining strategic focus at all levels, in all activities. Ensuring that whatever decisions are made and whatever actions are taken are in alignment with where the organisation wants to go. Of course this relates strongly to Principle 2 (Leadership). It also relates back to Principle 3 (Involvement of

"The accident demonstrated in itself that important components of (the) system of management were either defective or not implemented."

Longford Royal Commission Report⁽⁹⁾

People) because the performance of people is, to a large extent, controlled by the capability of the system in which they work.

The Point of this Principle

- For an organisation to be effective over the long term, processes must be co-ordinated in an overall systematic framework;
- If everyone has an understanding of the bigger picture of which they are an active part, their decisions and actions will be more aligned with organisational purpose, policies, and strategies;
- There will be alignment between functional and operational processes and process improvements will be directed toward improving the whole system;

Principle 6 - Continual Improvement

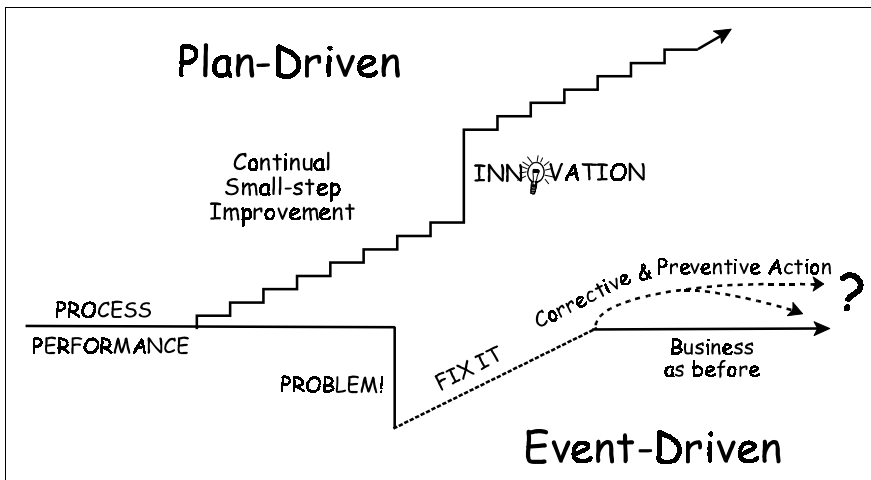
“Continual Improvement should be a permanent objective of the organisation”.

‘Continual Improvement’ in this context means the planned, pro-active improvement of all forms of work, at all levels in the organisation. To be effective, it relies heavily on the implementation of the other principles. In particular, a successful continual improvement approach is underpinned by the following:

- **Customer Focus:** the understanding that all processes have Customers, internal and external, and that these Customers play a major part in defining success;
- **Process Focus:** the understanding that everything is a process and that results can only be improved by improving the processes that create them;
- **People:** As we’ve seen, people work ON processes, creating them, managing them, leading their continual improvement; and people work IN processes, making them happen and contributing to continual improvement;
- **Measurement and Variation:** An understanding of the nature of variation and of the need to take measurements to know what processes are or are not doing, i.e. the extent to which they are meeting (or contributing to meeting) agreed requirements;
- **Leadership Focus:** A clear definition and understanding of strategic direction and objectives, coupled with the guidance to achieve these; a clear appreciation of goals so that scarce resources are applied to the things that matter most.

If it ain’t broke...

Waiting for something to go wrong and then doing something about it may result in some improvement, but it’s not what this principle is about. Problem solving and corrective action in this sense are event-driven; that is, they are based on the philosophy of “*If it ain’t broke, don’t fix it*”.



While process improvement methods can be used to effectively react to and prevent the recurrence of problems, Continual Improvement as promoted by this Principle means being *proactive*, i.e. looking for opportunities to improve a process, even though it is already doing its job. Continual Improvement is plan-driven, encompasses many small process improvements as well as innovation, and is based on a philosophy of: *"If it ain't broke, you haven't looked hard enough"*.⁽¹⁰⁾

We believe planned pro-active continual improvement is a fundamental concept of quality, and that's why we will have more to say about it later in the book (Chapter 19).

The Point of this Principle:

'Standing still is going backwards', as the old saying has it. There's another business maxim to the effect that if we discover something really good, we won't have it to ourselves for very long. The simple business point of this Principle is that if we don't practise continual improvement, we're unlikely to maintain a competitive position for very long. W Edwards Deming said that a characteristic of a quality enterprise is that it aims to be in business for the long haul. If we want to be in business for the long haul, we can never rest on our laurels.

*"Nothing wilts faster than laurels
that are being rested on."*

Tostain

Principle 7 - Factual Approach to Decision making

“Effective decisions are based on the analysis of data and information”.

We'd like to take a little longer on this principle than most of the others. We've already expressed our concern that there is no direct mention of *variation* in the set of eight principles. Principle 7 seems a good place to slip in a few remarks about this vital concept.

How long does it take you to travel to work each day? There is no way to answer that question with a single number. It may usually take you, say 45 minutes door to door. But if you were to measure it every day (using the same definitions and methods), you'd get a whole lot of different times. Quite a few of these would probably be in the 40 to 50 minute range, but there might be some shorter and longer ones as well. This is *Variation*.

So, in a way, we have here a double-barrelled Principle. To improve things, we need to know how things are going. To know this, we must take measurements. And because all processes exhibit variation in many different ways, measurement must be such that it reveals this variation. Further, the measurement system itself will have inherent variation, so we need to understand that as well.

Why Measure?

Stated in broad terms, we measure so we know what our processes are doing. If you don't know what your process is doing, it could be sending you broke. An oft-quoted cliché is *“You can't improve what you don't manage, and you can't manage what you don't measure”*. More specifically, we measure so that we...

- ... know whether our processes are doing what they are supposed to be doing - both in terms of the actual outcomes and in terms of the degree of variation in these outcomes;
- ... can make decisions about the process based on facts and data rather than on guesswork;
- ... can compare process performance before and after we have made a change;

- ... determine whether a change in outcomes is normal expected behaviour of the process, or due to a real change in the process itself.

What to Measure?

Having established the need to measure, the next logical question is *what* to measure. Unless measurements provide the right information for intelligent process management and improvement, you could be making things worse rather than better. If data is gathered merely for the sake of gathering data, you could well find the things you would *like* to see, but these are unlikely to be the things you *need* to see. To see the latter, the key indicators of success need to be identified and measured.

The following sequence of questions will help in doing this. As system performance is determined by process outcomes, this is easier to do for individual processes rather than for whole systems:

- What is the process supposed to be doing exactly? Why does it exist?
- How is 'success' defined for this process? How do we know that the process is doing what it is supposed to be doing, and how well it is doing it?
- What measurable observations can be made that, between them, will tell us to what extent the process is achieving this success?
- What is the best way to obtain these observations or measures?

Note that the issue of variation is an important consideration in addressing all of these questions.

Variation is everywhere

No two things are ever the same. For example, if you were to measure the time from request to response for hotel room service, you'd find considerable variation. In other situations you may need to go to very fine detail, but eventually you'll see differences. For example, if you take a batch of extruded plastic bottles they all look the same from a distance but if you examine them closely, you'll find they are all a little bit different in some way or another. If you are involved in taking measurements, you will know that measurements will differ, even if the parameter you're measuring has not changed.

‘V’ is for Variation

In a practical sense, quality is largely about managing process variation to achieve consistency in targeted outcomes. So it was a surprise to Jeff when, speaking at a conference of certification auditors, literally half the participants stopped him in mid-sentence when he used the V-word. Because ‘variation’ was an unknown concept to them, they didn’t understand its relevance to quality management systems.

Then again, perhaps it was not so surprising after all: beyond a one-week course on auditing, quality auditor registration does not require any formal qualifications in the quality field.

Variation is an important consideration in Continual Improvement, because the more things vary, the less you can be sure that your Customers’ expectations are being met. Of course this ties in with the idea of success at all levels, including Organisational Success. Provided the process is correctly targeted, the less inherent variation in the process, the greater the quality, the greater the success. Acknowledging and understanding variation is therefore a fundamental aspect not only of Continual Improvement, but of the whole quality concept. On the one hand looking for the ways in which things are different, *knowing* that things will vary, and on the other hand constantly working at reducing variation, so that products and services become more consistent.

Incidentally, have you ever entertained the notion that the whole idea of Quality Systems and standards is basically about reducing and managing variation?

Statistics and Statistical Techniques

*“A person with an opinion
and no data is just another
person with an opinion.”*

Tostain

The unifying factor between variation and measurement is Statistics. Statistics is the language of variation - it takes measurements and turns them into pictures of variation. These pictures can tell you lots of things, such as:

- Actual variation in process outcomes - in turn, this indicates the predictability of what Customers are being given;
- The capability of the process to meet specifications. If the process is not capable, the Customers are getting unacceptable products or services, and/or lots of money is being wasted on rejects and rework;

- The stability of the process - in other words whether or not variation in the outcomes is due to causes inherent in the process. Or in still other words, whether the process gives the same statistical 'picture' every time you look at it;
- The results of improvement efforts - without measurement and analysis, there is no way of knowing whether an improvement has been made and if so, how big it is;
- Whether an observed deviation could simply be a quirk of the process or due to explainable special events;
- ... and much, much more.

Data, Facts, Information, Knowledge

Decisions are not simply based on data. Decisions and actions are based on the results of a logical analysis of measurements, balanced with experience, knowledge and intuition. Intuition? We believe so - that's where the difference between data and facts comes in. Observations like 'The temperature in this room at the moment is 23C' and 'The stock market finished 35 points up last night' are data. On the other hand "*I don't feel comfortable about that course of action*" is not data, but it's still a fact that I feel

uncomfortable! We believe the definition of 'fact' has room for feelings. So does the definition of 'logical analysis'. Most people make their decisions and judgements logically, but not everyone uses the same kind of logic. Some use logic based on impartial, objective analysis, others place greater store on ethics, values and people-related issues in their reasoning - ideally there is a balance between the two.

The purpose of logical analysis, however it is done, is to create information. In other words to process the data and the facts to a point where they can be

Knowledge Management?

"During the 'rationalisation' of a major UK corporation in the early 1980's, mass voluntary redundancies were seen as the way to profitability. Encouraged by generous 'handshakes', many left. On one Monday morning a problem arose in the laboratory. The three technicians with the knowledge to conduct a certain test had all taken voluntary redundancy and left the previous Friday. Production was slowed. Emergency meetings were held. Phone calls were made. Two were recalled with the status of 'consultant' at three times the cost of their previous salaries!"

Jon Choppin, "Quality through People"

used for judgements and decisions. At that point, knowledge and experience will come into it as well. Many organisations are good at measuring and fair at analysis, but are only beginning to appreciate the importance of creating, managing and protecting knowledge.

The Point of this Principle

- If this principle is implemented, data collection will be directed toward collecting those data (and only those data) relevant to what the organisation needs to know. The data collected will be accurate and timely;
- Knowledge will be appropriately managed and new knowledge generated, harnessed and protected. This is an important component of the enterprise becoming a continually learning organisation;
- Data, facts and knowledge will be used to make decisions that are sound and appropriate to the organisation's strategies for success.

Principle 8 - Mutually beneficial Supplier Relationships

"An organisation and its suppliers are interdependent, and a mutually beneficial relationship enhances the ability of both to create value".

Here are a few questions to ask yourself:

- Do you expect your Customers to pay you promptly, but do you keep your suppliers waiting as long as possible? How do you justify this? Are you not your supplier's Customer? Are you not your Customer's supplier?
- What do you expect from your Customers, with respect to how they treat you and the extent to which you would like them to involve you in their business? Don't you think *your* suppliers would have those same expectations of you?
- Would 'cultivating' your suppliers help to create a smooth supply chain system? (This, by the way, is a requirement of QS-9000).

In the world of quality, the important matter of supplier relationships is almost the *forgotten issue*, and we see its inclusion as an ISO 9000:2000 Quality Management Principle as highly significant, particularly as other models, such as the Australian Business Excellence Framework, seem to have pushed it into the background. It's there, but not as a major issue.

Relationships with suppliers in many organisations and environments are still steeped in the traditions of mutual mistrust. Both logically and from a business point of view, this doesn't make much economic sense. There is much to be gained by close working relationships with a limited number of well-chosen suppliers.

Whatever comes from suppliers goes into processes, and therefore has an influence on the outcomes. Cultivating partnership relationships with suppliers and contractors (note 'partnerships', not merely 'contracts') gets processes off to the best possible start.

"It is a very sobering feeling to be up in space and realize that one's safety factor was determined by the lowest bidder on a government contract".

Astronaut Alan Shepherd

A quality enterprise, as a supplier to its Customers, fosters long-term co-operative partnerships with these Customers. In turn, the enterprise is itself the Customer of its suppliers. It therefore makes sense that it

would also foster long-term co-operative partnerships with these suppliers. If some suppliers don't understand the culture of continual improvement, they can be helped to learn.

Quality Thinking is tuned to long-term lowest cost. Short-term thinking leads to suppliers and contractors being selected on the lowest initial price. Long-term thinking is about selecting them on the lowest total cost over the life of a project or, for that matter, the company! This overall cost includes much more than just the initial price. Additional items could include returns, rejects, repairs, delays in delivery, replacements, unplanned changes, unnecessary accounting, out-of-date models, etc, etc. Long-term partnership relationships might avoid many of these and have benefits such as joint planning of upgrades and improvements. There will be better communication on current and future expectations and on quality perceptions. Mutual performance will be readily discussable and there will be opportunities for joint developments of product and strategies. Co-operative efforts tend to yield mutual benefits including access to technological initiatives.

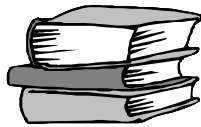
Limiting the number of suppliers for any particular item or service also makes sense. For one thing, it reduces variation in your inputs (wherever you

have more than one of the same thing, you increase variation!) and this, in turn, improves quality and productivity. There will also be less waste as costs in communications and accounting are reduced and ordering and inventory management simplified.

The Point of this Principle

The point is to foster long-term strategic alliances with a limited number of suppliers. This will lead to reliable, on-time, right-first-time deliveries of supplies, in turn resulting in reduced variation, reduced costs and hence a competitive advantage. It will also help to create better forward plans by being able to include suppliers in the planning process.

This all comes together in an overall systems approach in which the whole supply chain is aligned with the needs of the end Customer, *which brings us back to Principle 1!*

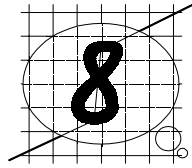


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10. The phrase *"If it ain't broke, you haven't looked hard enough"* was coined by Tom Peters in *'Thriving on Chaos'*, Pan Books 1989.

"Theoretical understanding of the principles of combustion won't keep you warm if you don't know how to build a fire".

quoted by Dean Stratton



ISO 9001 Requirements - Management of the Organisation

*“A victorious army first wins and then seeks battle;
a defeated army first battles and then seeks victory.
This is the difference between those with strategy
and those without forethought.”*

Sun Tzu

In previous chapters we explained that ISO 9001 is simply a compendium of the potential risk exposures that any organisation ought to be controlling to reduce variation and to prevent problems in the production of its goods and services, at all stages from design through to post-sale servicing.

At the same time, we also pointed out that the scope of this standard is limited to a focus on:

- The Customer as the sole stakeholder;
- The demonstration of an ‘adequate’ level of quality assurance;
- The need to achieve Customer satisfaction as the test of system integrity.

We’ll now have a more detailed look at what we must address, to meet the requirements of ISO 9001. In the present chapter we’ll explore the aspects relevant to Management of the Organisation. In the two chapters following, we examine the elements pertaining to Management of the Product and Management of the System itself, respectively.

The requirements relevant to Management of the Organisation are covered within Sections 5 and 6, and part of section 8 of ISO 9001.

The Quality Policy

Managers are responsible for providing leadership to the organisation's quality efforts.

The starting point for quality systems (and indeed for any business system) is the policy of the executive management who have ultimate authority within the organisation. (ISO 9001 refers to this group as 'top management'). The policy must have real meaning for the organisation, as it determines direction and priorities throughout the enterprise. A meaningful statement of your intent with respect to quality is required - something that people can understand, commit to, and take direction from.

Many believe that the policy statement has to be long and flowery to be acceptable. The results are then often counterproductive - they are full of 'technogarble' and are consequently unintelligible to most people. Alternatively, they can be so altruistic that one wonders if the top management are really that soft. Don't fall for it! Instead, use the 'SUM' principle: *Simple, Understandable, Meaningful*.

ISO 9000 defines a Quality Policy as:

"The overall intentions and direction of an organisation related to quality, as formally expressed by top management."

In other words, it is management's statement to everyone concerned, both inside and outside the organisation, of the organisation's intentions and views on what is important, with respect to quality.

A good quality policy has at least the following characteristics:

- It is relevant to the purpose of the business;
- It is meaningful to everyone affected by it, i.e. it has a significant and well-understood influence on everyone's working lives;
- Its intention is obvious and it is clearly and unambiguously defined.

It must make the intention with respect to quality crystal-clear to everyone having dealings with the organisation, as well as to those inside it. Any Customer, supplier or employee should be able to appeal to the Quality Policy and insist on getting the treatment it implies.

"People listen with their eyes. All the rhetoric in the world will do you no good unless they see you set the example."

Quality Policy Guidelines

ISO 9000.2:1987 provided the following guidelines regarding Quality Policies, which we consider to be still relevant:

When defining and documenting a quality policy, quality objectives and commitment to quality, management should consider the following points:

- *The quality policy should be expressed in language which is easy to understand.*
- *The quality policy should be relevant to the organisation, its other policies, the products or services provided, and the organisation's people.*
- *The objectives should be ambitious and achievable.*

Management should demonstrate commitment visibly and actively on a continuing basis. Commitment can be demonstrated by activities such as:

- *ensuring the organisation's people understand and implement the quality policy;*
- *initiating, managing, and following up on the implementation of the quality policy, including implementation of the quality system;*
- *not accepting deviations from quality policy or wasted resources in any part or aspect of the organisation.*

The policy should be carefully worded, because much damage can be done to an organisation which makes a policy statement and then obviously fails to embrace it. On the other hand, don't steer away from being ambitious; in life we never exceed our ambitions! The damage is done when lack of commitment to the ideals embodied in the policy leads to what will be clearly perceived as a failure of the intent.

In many cases, such failure of intent stems from a policy statement made only for 'window dressing', or created by someone other than top management. Some policy statements are so weak in their intent that they don't lead to anything - they don't provide any meaningful direction. They merely perpetuate the status quo, often having been written only "to get accreditation [sic]".

Remember that a quality policy is a statement of intent, so its wording must reflect this. Examples of appropriate phrases are: 'The company intends

to...’, ‘We will endeavour to ...’, ‘XYZ company continually seeks to improve ...’, etc. Terms such as ‘perfection’ and ‘zero defects’, used in an absolute sense, are less appropriate, and can actually be counterproductive, as failure to deliver is virtually guaranteed.

The publication of a Quality Policy is no trivial matter - it will (and should) create expectations that will have to be met in order to retain credibility in the organisation. Its implications will penetrate all areas of the business - Customers, suppliers and employees. The latter will probably be the most critical and potentially cynical, so it is especially important to get it right for them.

Once the policy is developed, it is up to the management to ensure that everyone understands it, and that everyone is supported in developing behaviours that are consistent with it. This requires a lot more than posting the policy statement on noticeboards and in Company foyers. It needs to be lived - all day, every day. And just as circumstances change in life, so they do in the organisation, creating the need for the policy to be reviewed and updated over time.

Life is breathed into the policy by the expressed commitment to quality of the top management. This is made visible through role-model leadership. It is essential that senior management send appropriate signals to all parts of the organisation. There are several ways of doing this. The clearest and most obvious signal is sent when top management regard an effective management system for quality (and other aspects of organisational activity) as a ‘must have’, and are uncompromising in their demand that this priority is taken seriously. This is reinforced by constantly directing the organisation’s focus to meet Customer requirements, as well as other supporting requirements that emanate from statutes and regulations.

An Example

Here is an example of a Quality Policy based on one shown in Jon Choppin’s book ‘Quality through People’⁽¹⁾:

QUALITY POLICY

Acme Manufacturing Pty Ltd pledges its intention to work with each of its Customers and suppliers to achieve continuous improvement of all goods and services, for their mutual benefit.

It intends to meet the negotiated requirements and expectations of each and every Customer, and will insist that each and every supplier provides the same high standard.

This is nice, precise, concise. Note that it does not contain any strategic statements, i.e. statements indicating how this policy will be carried out. Customers (including employees) and suppliers would also need to see a statement on how this intent will be turned into reality.

"The atmosphere of the gaol reflects the mentality of the governor."

Ralph Waldo Emerson

Strategic Objectives

Even as long ago as 200 BC, wise people knew the difference between intentions and actions: *"'He means well' is useless unless he does well"* said Plautus (254-184 BC). A policy (i.e. a statement of intent) is a good start, but it then needs to be backed up by strategic objectives – performance targets which, when actioned, turn the intent into practical outcomes.

The policy provides the framework and the cultural environment for quality within the organisation. Objectives are not usually derived from the policy, but are normally an outcome of the development of the strategic intent for the organisation. In other words, objectives derive from strategy. And just as strategy normally evolves and changes over time (sometimes abruptly), so objectives need to be modified as required to steer the organisation in the correct direction.

The objectives for quality indicate how quality progress and achievement in the organisation are to be measured. Jeff recalls that on many audits in which he has been involved, senior managers have been surprised and puzzled that he should ask to see documented objectives for quality. Yet it is objectives that give some driving force to the policy. In many organisations they are in fact already there, embedded, for example, in strategic, business and marketing plans.

Got a Minute?

The quality policy needs to focus on the Customer. At a visit to a statutory authority a few years ago, we observed their policy statement displayed on the wall:

"To provide our Customers with a friendly quality service which satisfies their xxxxx needs"

After waiting in a queue for over forty minutes to conduct a simple payment transaction, we felt the word 'speedy' should have been included. They complied with their policy, but the policy itself was missing something vital.

*The Road to Hell is paved
with good Intentions.*

Old Proverb

However, objectives do more than just measure performance. They also *drive* performance. If we can determine objectives that reflect the strategy of the organisation, then by focussing our efforts on those objectives, in order to create improvement in

areas that matter, we will actually implement our strategic intent.

QS-9000 provides a very clear explanation of how to manage this whole aspect of objectives. First, a comprehensive business plan is required. Within this, the quality objectives are defined, to capture the short- and long-term goals. The progress toward achievement of objectives is then tracked through performance measures which cover...

"...trends in quality, operational performance (productivity, efficiency, effectiveness, cost of poor quality) and current quality levels for key product and service features."

QS-9000 appears to be close to having the correct focus in its approach.

ISO 9001 clearly has this in mind when it directs us to develop objectives at the organisational level, and to deploy them through the various functions of the organisation. However, there are a number of reasons why this can be difficult. For example:

- How do we restrict our set of objectives to those things that really matter, and avoid becoming overwhelmed with too many objectives?
- How do we ensure that we don't create conflicting objectives, which pull in different directions?
- How do we ensure that our objectives are not just focussed on outcomes, but also direct us to management of processes that deliver desired outcomes, or even focus on building the capability and knowledge capital of the organisation?

The Right Signals?

The scene is the board room of a large company. The management group is assembled for a briefing by the General Manager to introduce the ISO 9000 development program. After telling them how important this is to the Company and how he expects everyone to be fully committed and supportive of the Quality Manager, he concludes:

"Now I don't expect to get any benefit from all of this - we're only doing it to get those contracts."

- How do we ensure that we develop objectives in support areas, such as finance, human resources and I.T., that are meaningful and consistent with those in more external Customer-facing processes?

A proven methodology for doing this is the Balanced Scorecard approach⁽²⁾. With this approach, a visual representation of the organisational strategy, called a Strategy Map, is developed, along a continuum from lead indicators to lag indicators.

The 'flow' can then readily be

seen, from organisational learning and development, through process management, to Customer outcomes, and finally to financial outcomes. This can, of course, be adapted to different types of organisations, such as local government, not-for-profit, etc. Any additional strategic goals, such as those relating to safety, can also be included.

"No company can be successful, in the long run anyway, if profits are its principal goal. The successful companies will be the ones that put quality of life first. Do this and the rest - quality of product, productivity of workers, profits for all - will follow."

Ricardo Semler

Once the Strategy Map is developed, a core set of objectives (ten to twenty, say) and performance measures for those objectives can be identified at the organisational level. These can form the high-level set of measures that top management can monitor. Lower-level measures that are consistent with these can be developed and deployed through the organisation, to direct and support the objectives that are identified at various levels and functions within the organisation. This creates organisational 'alignment' - everyone pulling in the same direction.

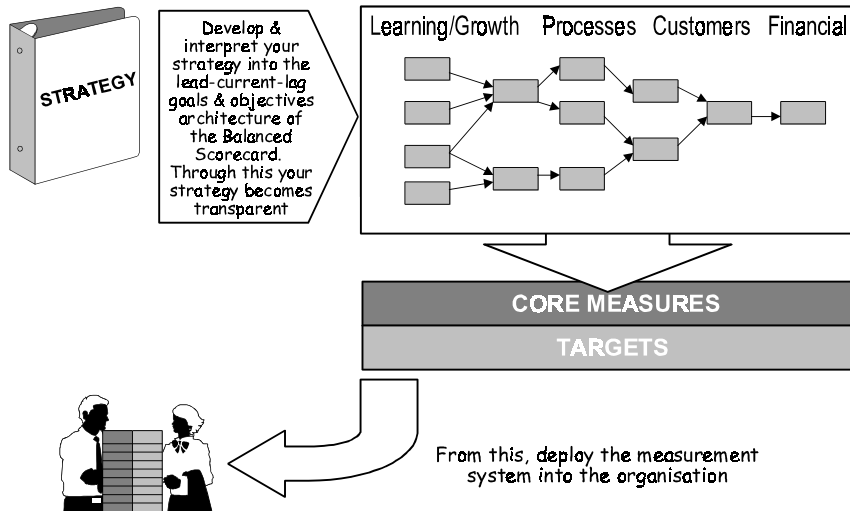
The way this Balanced Scorecard approach can be developed is shown in the diagram at the top of the next page.

Key Objective

During an audit in a large distribution company, Jeff was reviewing the objectives of the organisation. He was presented with a set of about fifteen objectives, developed from a strategic workshop of the top management.

These covered a broad range of matters. However, sure enough, included within them was the key quality objective: "To develop an infrastructure that will meet the current and future capacity needs of our Customers".

Balanced Scorecard Development Process



ISO 9001 talks specifically about quality objectives, for reasons we have explained previously. When an organisation takes a strategic approach, quality matters won't be kept separate. They will be integrated with the organisational approach as a whole – which is the way we all know it should be done. More on this in Chapter 13.

A Practical Note

Policies and Strategies are not things to define once, stick up on the wall and then forget about. They need to be regarded as 'live' documents, which are clear and realistic enough so that they can be the basis of periodic management reviews. It is necessary from time to time to check how closely reality resembles the intentions!

A quick test of currency and deployment could be:

- Show me where you have defined the quality policy;
- Explain to me what it means;
- How do you go about communicating it consistently to your managers?

- How do you ensure that managers ‘buy in’ and communicate it effectively to their people?
- What part does it play in your review processes?

Responsibility, Authority and Communication

For the policy and strategic objectives to be deployed properly, the management systems need to work effectively. In that context, people who work in the systems need to be clearly aware of their roles. Authorities (the power to make decisions that affect the business), responsibilities (the requirement to act on those decisions or to carry out job functions), and the way the communications and reporting relationships work must all be defined. In practice, this is done through a variety of means such as the following:

- Position descriptions;
- Organisation charts;
- Documented procedures;
- Controlled access to various functions of the information system.

It is important not only to define, but also communicate the role definitions throughout the organisation, so that people know the expectations of them in the roles they fulfil. We have seen more than once the two extremes of having either no clear role definitions at all, or well developed position descriptions which are held under lock and key as ‘confidential’ documents, without even the incumbents being aware of their existence.

Role expectations need to be deployed, as part of a larger communications framework. Channels need to be provided for people to manage their processes, as well as to manage the effectiveness of the quality system as a whole. This includes the amorphous, unstructured communications that healthy organisations foster (the ‘shadow system’) and the formal communications and reporting channels, both to and from the top management, and across the organisational process paths and linkages.

Some of the approaches to this are:

- Noticeboards;
- Email;

- Toolbox meetings;
- Corridor talk;
- Operational meetings;
- Management meetings;
- One-on-one discussions.

The nature and extent of communication channels varies with the size and culture of the organisation. Regardless of its character, communication is an essential part of the system. Quality systems will not work in a communication desert.

The Special Role of the Management Representative

While all managers are expected to manage for quality, someone needs to have the job of looking after the quality system. This isn't something you allocate to the junior secretary, or to the bright (but inexperienced) young graduate. It must be filled by someone in the executive management team - although not necessarily as a full time role. There can be a tendency for

Perspective

We know of several organisations, well known for the quality of their products and services, where the quality system is considered so vital to the business that the CEO has claimed the stewardship of the systems as part of his/her own job.

these people to become the focus of quality in the organisation: *"Anything to do with quality is their responsibility, while we get on with our normal jobs"*. That's missing the point of course. What is required is a steward of the system, to ensure that it is properly developed, its importance is communicated and its

effectiveness is maintained. This person reports back to the rest of the management team on how the system is performing, so that it can be continually improved.

Human Resources: Competence, Awareness and Training

The training requirements of organisations are very important, and despite the (somewhat contrived) discipline of the Training Guarantee Act in past years, are not always addressed well at the competence level.

This requirement allows great flexibility in how it might be approached, because its focus is on outcomes. We need to ensure that people are not only

provided with training, but also that the training enables them to do the necessary work and achieve the required outcomes: process maintenance, continual improvement, and Customer satisfaction. So at a minimum, we need to work out the specific competencies people need for the various activities in the organisation that affect product quality (are there

any whose work doesn't?). From this we can conduct a 'gap analysis' to work out what we need to do to achieve the required levels of proficiency. We also need to decide how these competencies will be assessed; in other words, what evidence will we look for to confirm that, after training, people are able to carry out the activities in the required way.

"Training is all about re-invention. It's a significant investment in human capital that's more important than any investment in physical capital. Training and a highly motivated workforce go together."

Stuart Hornery,
former Chairman of Lend Lease

Training is normally required at several levels in organisations, and when people's skills are being reviewed, it is helpful to consider their needs at these levels⁽³⁾:

- Organisational needs - these are the training requirements that relate to the abilities needed for an organisation to meet its strategic objectives. For instance, an organisation that seeks to upgrade its system from alignment with ISO 9001:1994 to ISO 9001:2000 may need to develop organisational capability in improvement initiatives or Customer satisfaction evaluation. Jeff recently observed, in a passenger rail business, that there was only one person trained for the critical role of timetable rescheduling and performance compliance evaluation - an example of organisational training needs not being met adequately.
- Occupational needs - these are skills that people need to do their jobs properly, often in compliance with regulatory or statutory requirements. Examples are competency evaluation skills, doctors' or financial planners' registration, and basic hygiene training for catering staff.
- Personal needs - these are the needs people have to enable them to fulfil their roles properly. This could include supervisory training, Customer service training, or training to work better as part of a team.
- Facilitative needs - these include those aspects of training that provide the overall environment in which people work effectively. It includes induction to the organisation and to new roles, their own objectives, and an awareness of how they fit with and contribute to the overall organisational purpose. Doing this properly is more than just a few

words here and there. It can, and generally should include, becoming aware of upstream and downstream work processes and needs, as well as those of Customers and suppliers.

Finally, when we plan and conduct the training, we need to keep records of everyone's training outcomes and achievements. This should be developed into an overall personal profile record, covering each individual's education, training, skills and experience.

The competency-based approach to training is now well-established in Australia. Originating in work activities where risk was high and outcomes needed to be assured, such as pressure welder qualification, it is now extended to the broad spectrum of TAFE certificate courses and beyond, to general job analysis at an organisational level. Within the national qualifications framework (Certificate level outcomes and above), the system is managed by the Australian National Training Authority (ANTA)⁽⁴⁾. ANTA approves registered training organisations (RTOs) and TAFEs to provide recognised training courses. Course presenters and competency evaluators also require specific competency-based training: the Certificate IV in Workplace Training and Assessment. This ensures that training is provided and assessed in a reliable and consistent manner, to ensure that the outcomes are trustworthy. It also enables the qualification to be transportable to other workplaces. Many organisations wisely ensure that they include this qualification in their own competency requirements, regardless of whether the training is within the ANTA framework.

"If you think training is expensive, try ignorance".

Peter Drucker

Resources, Infrastructure and Work Environment

It is a key requirement of ISO 9001 that the organisation has the proper resources to ensure the capacity to do everything necessary to satisfy Customers. This applies not only to the value-adding processes, but also to quality management system itself. The requirement is not just for the minimal resources to keep things 'ticking over'. There needs to be sufficient resource capacity in the organisation for ongoing maintenance of the systems and everything needed for product achievement. There also needs to be sufficient resource capacity for the continual improvement of systems and processes.

This is an aspect which has been run down in many businesses during the 1990's. It manifests itself in a variety of ways: for example overworked staff, management systems which are not comprehensively audited, and long Customer waiting times to inbound call centres.

The evidence of the adequacy of resources is found in the infrastructure of the organisation: the network of buildings, equipment, communications, software, tools, services and utilities that give the organisation the capacity to function properly.

At the process level, resourcing must translate into an appropriate work environment. This consists of the conditions under which work is performed, including physical, social, psychological and environmental factors⁽⁵⁾. In practice this means that all reasonable steps should be taken to fit people into the process in such a way that they are able to work to best effect. It includes such aspects as:

- Space allowances;
- Noise, temperature, humidity;
- Ergonomic provisions;
- The pressure under which we place people;
- The way people are enabled to communicate, and conduct social interaction;
- Opportunities for involvement in the organisation;
- Approaches to personal development of people, in line with organisational objectives;
- Morale (often particularly an issue in service organisations because of the direct impact on Customer experience).

Customer Satisfaction

The measurement of Customers' perceptions of the degree to which their requirements have been satisfied enables the 'crunch' question to be answered: 'Does our system work?'. Ongoing monitoring of Customer satisfaction enables us to be confident we are still on target and improving over time.

In practical terms there are two facets to this: the degree of satisfaction with a product (goods or services or both) that has been provided, and expressions of dissatisfaction, which we call 'complaints'. Many people think that if their Customers don't complain, or the levels are very low, then their Customers are satisfied. This is not necessarily so. As Benny Hill said: "*Just because nobody complains doesn't mean all parachutes are perfect.*" Complaints and satisfaction are two very separate matters.

Complaints occur when Customers feel they need to make it clear to us that they think we have failed to deliver what we promised. Complaints represent a cry that our

Customers do not think we are Customer-focussed and that we need to tune in to them. *Usually only a small percentage of affected people will actually complain*, so the ones that do complain represent a much larger constituency.

"Say 'thank you' to complaints - they are precious opportunities for improvement."

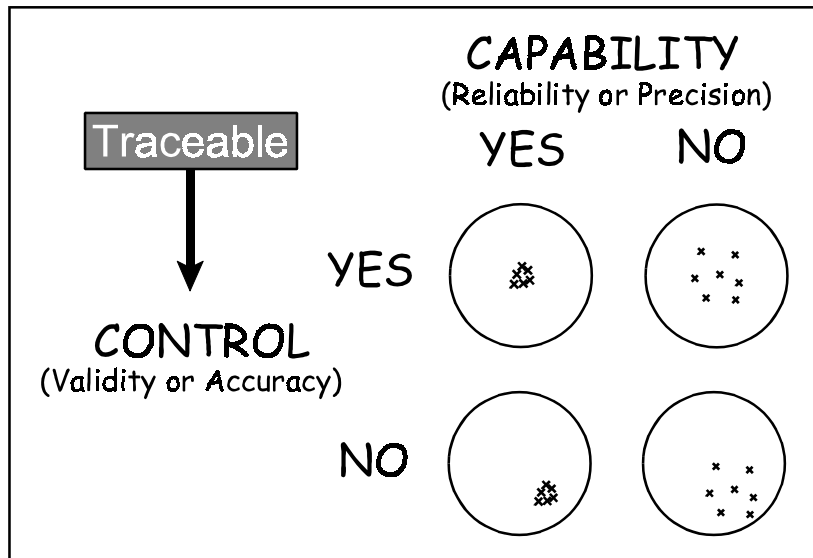
Masaaki Imai

It is usually an uncomfortable experience to receive a complaint, and for many people the natural tendency is to become defensive or self-justifying; the 'that couldn't happen here' response, or 'you must understand how difficult it is' excuses. However, if complaints are accepted graciously, and if valid, corrected as expeditiously as possible, then the resulting level of satisfaction can be higher than if the original service was delivered without a problem. Some organisations treat all complaints as valid - a no questions asked policy - because they know the power of a great 'recovery'. On the other hand, all of us have stories to tell of organisations with which we will never voluntarily deal again, because of a badly-handled complaint. When listening to the Customer, we'd all do well to remind ourselves of one of Bob Ansett's catch-phrases: *"Perception is reality"*.

The method for handling complaints should broadly follow the corrective action process, which is described in Chapter 10. A standard for complaints handling (AS 4269) is available from Standards Australia⁽⁶⁾. It describes good practice in this area, and we recommend this as a basis for the process in your quality system. Hopefully, it will not be needed very often, or at all.

Customer satisfaction, as opposed to complaints, is what we intend to achieve with our quality system. This has been a requirement of QS-9000 for some years, and we have noticed that many organisations encounter difficulty with it. We have observed similar difficulties with ISO 9001:2000.

The purpose of this process is to obtain a measure of our organisation's performance as seen by the Customer, in order to both verify the performance of our system, and to generate improvement in areas that matter to Customers. In other words, we intend to act on this information to steer the organisation into new levels of excellence. Consequently, we need to be sure that the information we obtain is good information. The two dimensions of this are 'validity' and 'reliability'. The diagram opposite (which will be revisited in the next chapter in the context of calibration of measuring equipment) illustrates this. Just as measuring instruments must be calibrated so that we can trust their outputs, the instruments for measuring Customer satisfaction must also be trustworthy.



Validity refers to accuracy of the feedback, i.e. the degree to which our method gives us a true representation of the real situation from the Customers' perspective. A valid instrument both tells us what the Customer regards as important and gives us the truth about it.

Reliability refers to the precision of the feedback. If we administered the instrument (such as a questionnaire) twice and the Customers' perceptions hadn't changed, would we get the same answer? Conversely, if the Customers' opinions change, will our instrument detect that change?

At the basic level, a fairly rudimentary questionnaire is sometimes created and sent out to Customers. However, developing a competent instrument to measure Customer satisfaction is both an art and a science.

Some of the issues to consider are:

- Whom should we approach in Customer organisations for business-to-business transactions? Our choice may influence the answer. Should it be the purchasing function, or the production function, or the quality function or the whole management as a group, since they each may have a different view of our performance? An incorrect choice at this basic level may skew the data and give an invalid result.
- For business-to-consumer transactions, how do we avoid similar problems from a demographic perspective?

- How do we decide what is important from the Customers' perspective i.e. which are the key Customer issues on which to get feedback?
- When should we seek feedback, and how frequently?
- Should we ask for comments, or should we use some kind of scale for the Customer to rate us? Or should we use both?
- Would it be better to send out a questionnaire, or seek feedback face-to-face?

As you can see, seeking dependable information from Customers is far from straightforward and there is a multitude of issues to consider. It looks deceptively easy, but it is also very easy to design something that looks great and will return information that is either not useful or misleading. This is why ISO 9001 requires us to think carefully about it, as we determine the methods for obtaining and using this information.

It is important to remember is that while we often think about our Customers in dispassionate ways, research has shown that Customers don't necessarily reciprocate. People often tend to make emotional, rather than rational judgements when it comes to the goods and services they acquire⁽⁷⁾. For example, the business to which Jeff takes his car for regular service and repairs does an excellent job as far as mechanical work goes. Though they are expensive, they keep an eye on things that are likely to go wrong, and make sure it is always in good mechanical condition. However, when he leaves his car he always has to ask for a lift back to the office. They always cheerfully oblige. They know he'll ask, but never offer. Is Jeff satisfied? Well, no. And he admits, it's an emotional judgement.

Customers often judge their suppliers on the most recent experience that they can remember, regardless of the long-term relationship or performance. They often judge the supplier on the basis of the worst experience they have had from them, while their service expectations are based on the best experience they have had. A good reason to avoid exceeding Customers' expectations unless we have the process control and capability to do it all the time! Remember, yesterday's exceeded expectation becomes today's demand and tomorrow's minimum adequate!

Determining Customer satisfaction requires much thought, and probably the best way to approach this most important part of the system is to use a number of different approaches together. Standards Australia has produced the handbook HB 251 "Customer Satisfaction Measurement", which can provide further guidance on this important area. We suggest you seek the input from an expert as well.

Points of View

At one business with which Jeff and Jo were involved, each of the managers were asked to list the things that they believed Customers would consider important about the product/service, and the importance rating they thought the Customers would assign to those attributes. Everyone was surprised when the managers all came up with different answers.

Even more surprising was the fact that when the Customers were asked, they had a completely different view from those inside the company.

Continual Improvement

A Group General Manager to whom Jeff once reported constantly emphasised the need for the business to improve: *“If we can be a half percent better on our profit margin than our competitors, it can make all the difference in a tight market. There’s no such thing as standing still. If we’re not improving faster than our competitors, then we’re going backwards.”* It is well known that quality improvement, properly applied with other technologies, leads to business success.

“People seldom improve when they have no other model but themselves to copy after.”

Oliver Goldsmith

The need to manage for bottom line results is undeniable. However it is not always easy to identify the things to improve that will really make a difference to the bottom line. And even if we can, how do we go about creating an environment for improvement so that it is a sustainable process?

A major criticism of past methodologies, such as TQM, has been that they consumed a lot of resources but didn’t make any discernible difference at the outcomes level. Our observation is that improvement must be strategically focussed, integrated with the business, led by management, and involve everyone. We can ensure that improvement is strategically focussed by guiding improvement resources to the areas that our objectives have identified as important. When we

“There is nothing wrong with the message of TQM. Failure is usually due to the messengers and their methods.”

Prof. Jerry Glover

do this, our people intuitively know that they will make a difference and, given appropriate leadership, engage in the process. The final chapter of this book has a few more thoughts on this.

Ideas for improvements can come from all sorts of sources. For example, one U.S. auto parts company has what it calls an 'ideas' program, in which every employee is expected to contribute a couple of ideas for improvement each month. Other organisations have a theme approach, in which improvements may be focussed on a particular outcome such as housekeeping standards, or reducing process cycle times. Then again, such approaches as 'kaizen blitz' (a nice multilingual contradiction of terms) can be used, in which an area of the business (office or production) is descended upon and in a few days totally overhauled, often with spectacular results. The trick is to make these results stick in the long term.

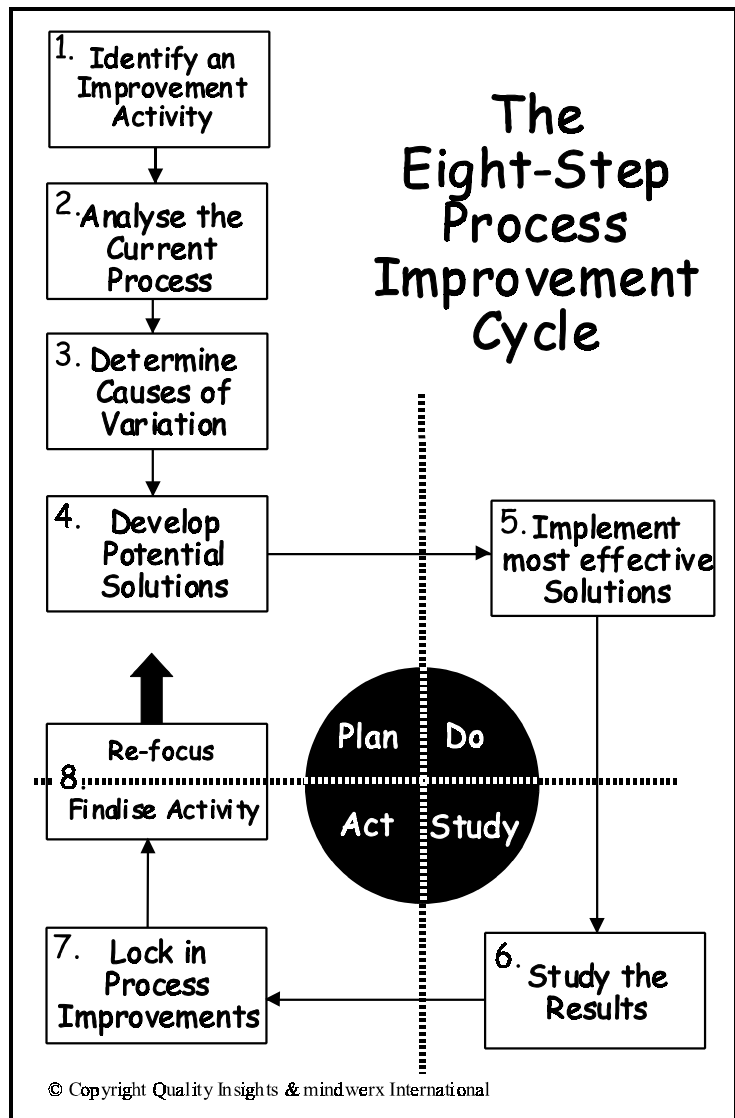
For team-based and facilitated improvement approaches, particularly at the process level, a methodology of some sort can be useful to ensure that improvement activities are appropriately managed. Jo recommends the improvement cycle shown on the facing page, which is explained in detail in the book *'Hidden Gold!'*⁽⁸⁾. A draft procedure for continual improvement of processes to build into your quality system documentation is available on request⁽⁹⁾.

The tools and technologies of quality really come to the fore in the area of improvement, and there is no substitute for a sound knowledge of them. In fact, the QS-9000 standard mandates that automotive parts manufacturers must demonstrate knowledge of a range of improvement methodologies, and use the ones that are appropriate.

When improvement is really working, both at the small-step ongoing continual level, and at the strategic breakthrough level, what kinds of results can you achieve? Here are a few examples from Jo's case book and that of his colleague Bill Jarrard:

- Availability of computer service increased from 80% to 99% without major expenditure;
- Staff turnover reduced from 59% to 12% a year;
- Rework reduced from 30% to 5% in just two weeks of team effort;
- Delivery times reduced from eight days to overnight;
- Audited reduction of production waste totalling \$250,000 in four months of improvement effort;

When continual improvement is happening throughout the organisation, you can ask anyone in what kinds of improvement activities they engage and then see evidence of it. You would see that the improvement activities are delivering real improvement for the organisation, as evidenced by the measures related to key objectives of the organisation and Customer satisfaction.



Data Analysis

How well is everything functioning to achieve our organisational objectives of Customer satisfaction and improvement? Unless we decide what data to gather, and then collect and analyse it, we won't know.

The nature of the data we gather is important. If we have developed a strategically structured approach such as that based on the Balanced Scorecard, we will have identified the important data types all through our organisation, and from outside.

The QS-9000 Improvement List

The following are the 'Continuous Improvement' tools listed by QS-9000. However, it must be pointed out that many of these are actually high-level management tools and have been around for a long time.

All of them are described in 'The QS-9000 Continuous Improvement Handbook' ⁽¹⁰⁾

- Capability indices
- Control charts
- Cumulative sum charting (CUSUM)
- Design of experiments
- Evolutionary operation of processes
- Theory of constraints
- Overall equipment effectiveness
- Cost of quality
- Parts per million (PPM) analysis
- Value analysis
- Problem solving
- Benchmarking
- Analysis of motion
- Ergonomics
- Mistake proofing

If we haven't taken this approach (yet) we need to scan widely. We should look for the aspects of the systems and processes which are relevant to meeting organisational objectives, as well as Customer requirements. We could look at lead indicators (which are more than just financial forecasts!) such as process trends, supplier performance data, training data, data on employee morale. We need to analyse processes in real time to ensure things are continuing to work to plan. Lag indicators should be identified too. These include yield and performance statistics, process capability indices, quality cost data, Customer feedback and various other numbers that relate to product quality, service and price. In doing

this, the judicious application of statistical techniques should be considered.

Category 3 (and Item 3.1 particularly) of the Australian Business Excellence Framework provides a good guide on the things to consider in the effective and efficient collection and use of data - see Chapter 19 for more details.

Management Review

The key method of co-ordinating improvement is through the management review process: Periodically the management group needs to review the whole quality system to ensure that it is still aligned with ISO 9001, fulfilling the stated policy, objectives and commitment, and still suitable for the organisation.

As with all other aspects, this is useful only if done in the spirit of quality, and with a focus on the business of the organisation. This means it is

None so blind as those who will not see

The company was part of a large multinational. 'Six Sigma' was the word on everyone's lips. People were parading their 'black belt' status, and speaking with new authority about process improvement.

Yet when the external auditor made a sound process improvement suggestion, they didn't seem interested. The suggestion was to obtain process capability data from a supplier, as a first step to leveraging process improvements that could stop the quarantine of off-dimension timber at goods inwards. "We don't need to waste time on that", they responded, "We're doing 'Six Sigma' here."

conducted like a regular, productive management meeting, rather than going through the motions just to comply with the standard. In addition, rather than dealing only with the quality system (perhaps in a somewhat superficial way), it is an opportunity to have a really good look at how the whole quality issue is progressing in the organisation.

The objective of the management review is to obtain feedback on how quality and the quality system are going, to make plans accordingly, to ensure the organisation's aims, behaviours, policies and strategies remain aligned, and to stimulate continual improvement. The output of the management review is expected to be improvement-focussed. By the way, the standard requires that records of these reviews be kept, the most common format being the meeting minutes.

Most important of all, however, is the review of information regarding Customer satisfaction. Remember that the purpose of the quality management system is to create satisfied Customers. So the top management should consider how well the quality management system is performing to deliver this objective. In fact, this is the 'acid test'. Regardless of how well we think our quality system operates, it is ultimately our Customer satisfaction levels that matter. If they are not satisfied, then our system does not perform to the level required, and the management review should do something about it.

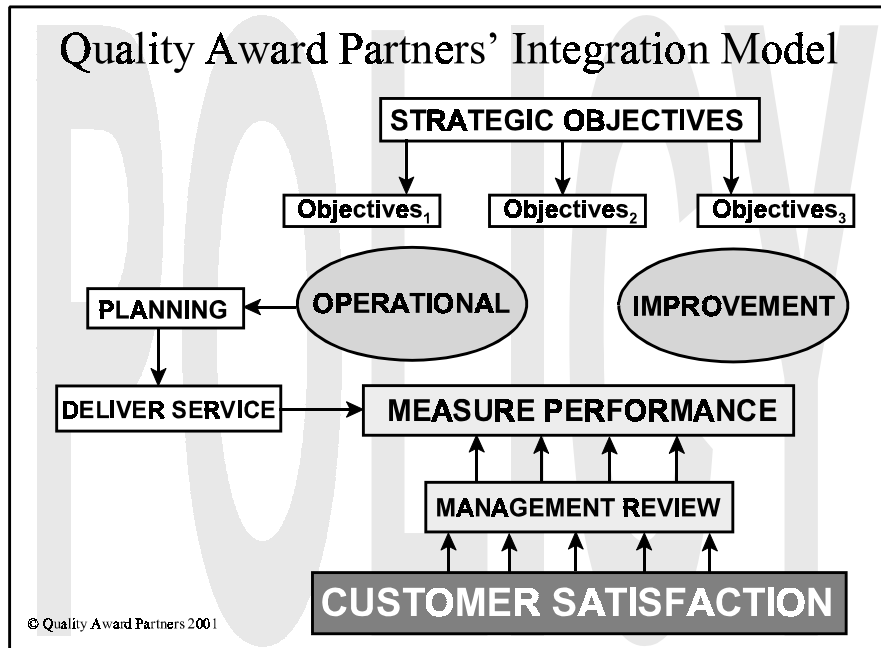
A Suggested Agenda

On the next page we show a list of issues we suggest might be examined as part of a management review of the quality system:

- Implementation of quality-related issues arising from the strategic business plan;
- The internal audit program: Is it up to date? Are audits thorough and meaningful? Is the audit frequency appropriate? Are there any problem areas? Is it supported and seen as a positive activity in the organisation? Are corrective actions appropriate and being taken promptly?
- Audits done by Customers and other bodies - what are the implications?
- Significant Customer enquiries and projects - do they signal a change in the market?
- Customer complaints - are they being recorded, handled in a Customer-oriented way, analysed properly and generating preventive action to eliminate the causes of the problems?
- The quality implications of any market research work done;
- Key business performance indicators;
- Training - what is the current status and what are the future needs?
- Organisational structure, and authority and responsibility relationships;
- The current state of improvement work and strategies for its development;
- Suppliers' quality performance;
- Preventive actions that have been implemented since the last review and the effectiveness of the system in this regard;
- Any impending changes that could affect the management system's integrity;
- Planning and management of continual improvement of the quality management system;
- **Most important of all, what is the level of Customer satisfaction? What should we do to improve it further?**

Bringing it all together

Having all the pieces in place is one thing. However, melding them together into a functioning business model is the ultimate goal, and ISO 9001 doesn't explain how to do this. It's up to you. We have developed a way to do this in our work with a number of excellent organisations, and this is shown in the diagram below⁽¹¹⁾.



The first element in the model is the Policy framework. This will vary from organisation to organisation. The policy provides the context for all of the business activities, especially with respect to Customer satisfaction and improvement.

The organisation then determines its strategic objectives. These are consistent with the policy, but are developed from the strategic processes, which results in a plan, or in many organisations an outline of strategic intent. Strategic objectives are determined at the organisational level.

Once developed, most organisations have a process of deployment into the departments or service entities. A key element of our model now emerges. The objectives that are deployed:

- (a) Are normally of both an operational AND improvement nature;
- (b) Are aligned to the organisational strategy. Note that this aligns with the Balanced Scorecard approach for strategic deployment, performance management and improvement.

The task of deployment is that of the departmental management. They are responsible to deliver services in line with the operational plans, as well as foster the carrying out of improvement activities in areas that matter strategically.

Performance measurement is a natural part of the model, and is based on operational/service delivery metrics that are relevant to both the organisation itself, such as financial control or productivity (efficiency focus), and also to the Customers in terms of service delivery outcomes (effectiveness focus). Again, the Balanced Scorecard can be included, as it provides a framework of both lead and lag indicators which cover the spectrum of features of organisational relevance (financial outcomes, Customer outcomes, process management, and people and system development).

Management then review the performance of the organisation against strategic objectives, Customer satisfaction being a key input.

This model is based on the strategic processes that leading organisations apply. It combines modern business practice with modern quality approaches. It represents the way in which organisations can manage their processes and make improvements in areas that matter to themselves and to their Customers.

"A system, no matter how good, is of no practical use without people who understand the benefits of working with it."

Chapter 8 - Key Points

- The organisation needs to have a well-articulated quality policy which is a meaningful statement of intent, providing direction and determining priorities;
- There must be appropriate strategic objectives and plans to put the policy into practice;

- The ‘Balanced Scorecard’ can be a valuable approach in this context;
- Appropriate responsibility and authority, backed by good communications, must be vested, understood, supported and exercised at all levels;
- Top management is responsible for stewardship of the system;
- People must have the competencies and awareness necessary to enable them to achieve intended process outcomes, satisfy Customers and carry out continual improvement;
- The organisation also needs to be appropriately resourced to enable it to achieve these objectives;
- Customer satisfaction is the key requirement of ISO 9001, and measuring it reliably and accurately is not a trivial matter;
- All processes must be subject to continual improvement;
- A discipline such as the eight-step cycle of ‘Hidden Gold!’ can be a valuable tool here;
- It is important to manage the use of data: What data is collected, how it is collected and how it is used;
- Category 3 of the Australian Business Excellence Framework can be a useful guide for this;
- The Management Review is a valuable process and should be treated as such;
- Management should ensure that the quality management system is strategically focussed, to ensure that improvement is aligned with strategic intent;
- The quality management system should be performance-based, and measurable outcomes can be evaluated and managed;
- Effective quality management systems require line management engagement and deployment. They should not rely on external facilitators, or ‘special’ staff to drive process control and improvement in the organisation;
- The Quality Award Partners integration model can be helpful in bringing all the various concepts together.



1. *'Quality through People'*
by Jon Choppin
IFS Publications, Bedford UK, 1991, ISBN 1 85432 094 6
2. The Balanced Scorecard was developed in the early 1990's, based on extensive research in a large group of organisations on how they translated their strategy into action, and then managed the organisational performance. A number of papers were published which explain the approach:
 - *'The Balanced Scorecard – Measures That Drive Performance'*, Harvard Business Review, Jan-Feb 1992;
 - *'Putting the Balanced Scorecard to Work'*, Harvard Business Review, Sept-Oct 1993;
 - *'Using the Balanced Scorecard as a Strategic Management System'*, Harvard Business Review, Jan-Feb 1996.

You can obtain these, and other papers on the Balanced Scorecard from **<http://www.hbsp.harvard.edu/>**

Alternatively, a comprehensive explanation of the methodology is contained in:

'The Balanced Scorecard'
by Robert Kaplan and David Norton
Harvard Business School Press, ISBN 0-87584-651-3

3. This structure was drawn from *'Managing Strategically'*
by Graham Wilcocks
The Open College (1995), U.K.
4. Information on ANTA's role and activities can be obtained from **<http://www.anta.gov.au/>**
5. 'Work environment' is defined in ISO 9000:2000
6. Standards Australia can be located at **<http://www.standards.com.au>**

7. This was discussed in Business Review Weekly (15/06/01 page 64):
'No Guarantees'. Research conducted by Michael Edwardson at UNSW on 368 Customer service experiences found that emotional responses predominated. Words such as 'angry' (30%) and 'happy' or 'frustrated' (21%) were used more frequently, compared to 'satisfied' (10%) and 'dissatisfied' (1.4%)
8. *'Hidden Gold!'*
by Bill Jarrard and Johan Kruithof
QI Publishing Company, 1999, ISBN 0-9577601-1-6
(Available via <http://www.qualityinsights.com.au>)
9. This is available via <http://www.qualityinsights.com.au>
10. *'The QS-9000 Continuous Improvement Handbook'*
by Jo Kruithof, Frank Mapperson, Jeff Ryall & David Scott
QI Publishing Company, 1997, ISBN 0 646 33159 0
(Available via <http://www.qualityinsights.com.au>)
11. A dynamic Powerpoint version can be downloaded from
<http://www.qap.com.au>

Life before Systems

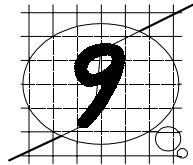
"People are making it up as they go along."

Sales Supervisor of a distribution company

"Every time we do something. it's an experiment, no matter how often we have done it before."

Systems Analyst in a computer service company

In Control and Capable:



ISO 9001 Requirements - Management of Product

*“It’s not the employer who pays wages - he only handles the money.
It is the product that pays the wages”.*

Henry Ford

In this chapter we take a closer look at those elements of ISO 9001 which are aimed at the management of product realisation - whether this be goods or services or both. The parts of ISO 9001 that are relevant are contained predominantly in Sections 5, 7 and part of Section 8.

Planning

Planning is required in a number of places in ISO 9001, because ISO 9000 has a strong preventive approach:

- Clause 5.4.1: Establishment and deployment of objectives through the organisation.
- Clause 5.4.2: The planning of the system itself, and way that the integrity of the system through periods of change is assured.
- Clause 7.1: Production planning.
- Clause 7.3: Design plans.
- Clause 8.2.2: Audit plans.

In the context of Product Realisation, where planning is most fully described in ISO 9001, the first step is, of course, to ensure that processes will operate effectively to achieve the Customers’ requirements and provide the ‘satisfiers’ to them. This is referred to as ‘quality planning’.

Quality Plans

Here is a selection of activities we suggest should be addressed by Quality Planning:

- *Organising the necessary processes, documentation, resources and skills;*
- *Ensuring the compatibility of all processes;*
- *Defining standards of acceptability for all characteristics of the product or service;*
- *Determining what quality records need to be created;*
- *Implementing adequate control, inspection, testing techniques and facilities.*

A 'quality plan' can be developed to show how all of the procedures and activities (that are described throughout ISO 9001) fit together to achieve Customers' requirements. This begins with determining objectives of the product realisation processes, and ends with determining the records that are needed to show that the objectives have been achieved. For an organisation which has basically the same processes for the variety of individual products offered, this can be a single short document. Many manufacturing and service companies fall into this category - for example, whilst an insurance company may have many different variations of policy types and options, the processes involved in serving the Customers are basically the same. In the construction industry on the other hand, each project may be different and will need to be planned individually. There is an ISO standard (10005) for quality plans (see Appendix 1).

Production planning is commonly done at the operational level. This activity organises and co-ordinates the sequencing, resourcing and scheduling of work, to deliver Customers' requirements.

Begin with the Customer

Determine the full specification of product to satisfy the Customer. Document and agree with the Customer, on the basis of being sure the requirements can be achieved. And make sure that the communication channels are working.

Getting this right is difficult. It is more than just old-fashioned selling, although this comes into it. It is necessary to understand all these aspects:

1. **What Customers say they want** - those things (needs, desires, concerns, etc) that create the sales opportunity in the first place.
2. **What they don't tell you** - but which you do (or should) know are **necessary** for their ultimate satisfaction.
3. **Statutory or regulatory aspects** that relate to the product and are necessary inclusions in the product content.
4. **Anything additional** that you choose to incorporate into the product offering.

Here's an example of how this might be covered. Suppose you are an electrical contractor who comes to someone's home to install a power point:

<i>Product requirement...</i>	<i>Satisfied by...</i>
1. The Customer tells you what he or she wants:	A power point installed in the far corner of the lounge 200mm from the floor.
2. You realise what the Customer will want:	<p>A working power point with fixtures of the same style and colour as the rest of the home.</p> <p>Also, after discussion, you find out that the Customer will want to operate a TV set, DVD player and music centre. Therefore, a multiple point will probably be needed to avoid messy power board connections.</p> <p>The Customer agrees.</p> <p>There will also be paperwork to deal with, which you will take care of. You tell the Customer this.</p>
3. Statutory & regulatory aspects apply:	The AS3000 wiring rules apply, as well as the licensing requirements of the Office of the Chief Electrical Inspector (in Victoria).

4. In addition, you choose...	To wear a neat uniform, maintain good personal grooming, remove your work boots when entering the house, speak politely, and telephone if you will be more than 15 minutes late for the agreed appointment.
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Back to the general discussion. Once these four aspects are sorted out, the key administrative components of the sales function need to be seen to. Before a tender or offer is made, or an order or contract accepted, the organisation ensures that the requirements are clearly defined, preferably documented, fully agreed between the parties, and achievable.

This applies to all forms of sale: contracts, supply agreements, individual sales orders, telephone orders, internet sales and verbal agreements. It also applies to any amendments to these. It is essential that some form of record is made to show that this check has been done.

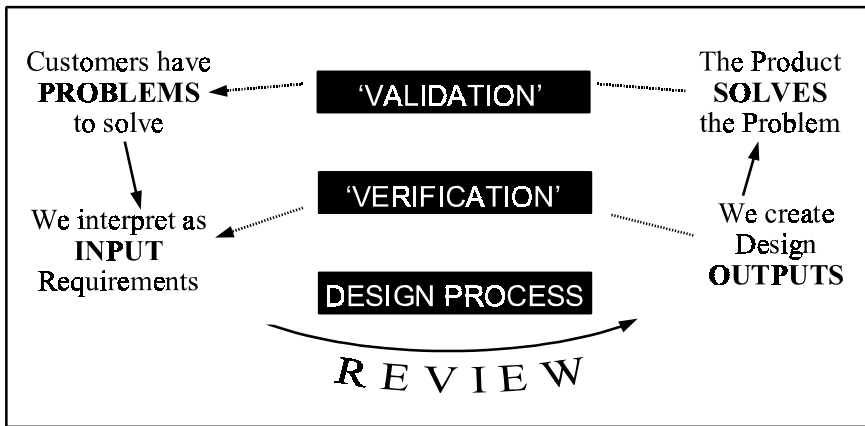
Finally, the communications process itself needs to be managed, with respect to the product attributes, the sales process, and the facility for feedback. While the requirements of this part of the standard are quite simple, some organisations struggle to come to grips with them - they find it difficult to consistently meet these requirements. It can be evident in a reluctance to be receptive to 'bad news' from Customers; it can also be evident in call centre practices (or lack thereof) which make it impossible to contact anyone in authority or get a problem attended to in a reasonable way.

Design and Development

Clearly describe what is to be designed; fully specify what has been designed; and verify that the design meets all requirements.

Design can take many forms: construction of large buildings and industrial facilities, development of hotel menus, custom-built instruments, education courses, paint formulations, packaging and artwork, financial products, computer software, etc. - the list is endless. In every case however, consistency and control can only be assured when the design process is planned, and then managed according to these plans. Work is allocated to qualified people who are adequately resourced. When others need to be involved (eg. regulatory bodies, Customers, suppliers, other functions within the organisation), the plan provides for this.

Although many organisations consider that the management system for design is quite complex, it can be represented quite simply, as in the diagram below.



The design inputs (ie. what is to be designed) must be clear and unambiguous, and not in conflict with each other. Statutory and regulatory requirements, as well as the requirements of any contract that relates to the design, need to be included. They need to be fully documented as records, and reviewed prior to proceeding further.

The creative part of the design process does not need to be documented (you may be relieved to hear this!), unless there is some prescribed method of carrying out the design. An example of the latter is the design of pressure vessels (ie industrial boilers, gas storage tanks, etc). For longer-term design processes it is important to review progress from time to time to ensure the design stays on track and continues to address everything it is supposed to. Everyone who can contribute value to this process needs to be involved.

The output of the design process does need to be produced in some tangible form, so that it can be evaluated. It must satisfy the input requirements, provide acceptance criteria, meet any regulatory requirements, and address issues of safety and proper function. It needs to be in a form that can be managed through the later product realisation processes.

"A verbal contract isn't worth the paper it's written on".

Attributed to Samuel Goldwyn

Design review is necessary at appropriate stages of the design process and the output needs to be verified as meeting the intended requirements of what was to be designed. This can be done by a variety

of means. For example, through alternative or check calculations, by prototyping, or by comparison with an existing proven design. Prior to final acceptance the entire design is validated.

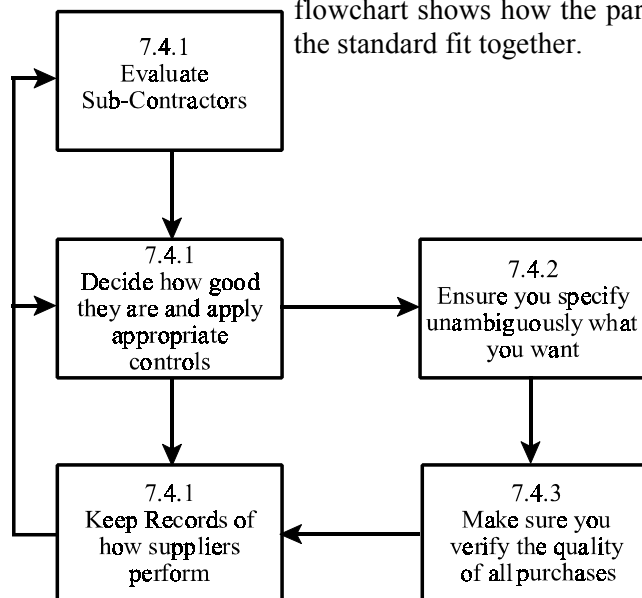
The entire design process, as well as the method for handling design changes, needs to be properly controlled. This is normally achieved through the judicious use of documentation, usually in the form of procedures. These need to extend to the handover of designs to those who have the job of implementing them, i.e. of creating the product for the Customer.

Purchasing

Ensure suppliers can consistently meet your requirements before you place your orders.

Purchasing casts a wide net throughout the enterprise. The list of purchased goods and services obviously includes raw materials that are used in the manufacture of goods, or for resale. However, the list is usually much longer than that and may include packaging and artwork, maintenance and calibration services, tooling, labour hire services, subcontracted manufacturing and delivery/transport services, information of various kinds, and add-on services that come as part of the primary product or service.

People often find this section of ISO 9001 hard to understand. This flowchart shows how the parts of this section of the standard fit together.



"Working with suppliers is the only way we can answer the question of international competitiveness".

Robert Dandie (Toyota Australia)

Once identified, the suppliers of purchased goods and services are evaluated to determine their ability to meet your requirements. The level of control that needs to be exercised over them can then be determined. This is based on the

product or service concerned and its importance to your organisation's systems. It may be influenced by existing records of performance history and capability.

A variety of methods is used to make a judgement of a supplier's capability. Sometimes organisations take a rather myopic 'quality' focus and divorce this process from the needs and methods of the real business. Short-term thinking can prevail, and as a result a supplier approval process can be contrived to look good for the auditor who will be coming to evaluate the system in the future.

There are many more relevant ways of building up confidence in a potential supplier's ability to fulfil your requirements. Here is selection of traditional but valid methods used for building supplier confidence:

- *Quality system certification by an accredited body* - but be aware that just because a company has a certified system does not always mean it is a good system, or that it can always be relied upon to provide conforming products.
- *Product certification* - such as StandardsMark.
- *Satisfactory result of an audit of relevant parts of the supplier's goods/service production and delivery systems* - this can be a very easy and effective way for many small business subcontractors, and one which they readily accept if done in the right spirit.
- *Type testing/appraisal of product samples* - a good method provided the samples are representative of future expectations.
- *Previous history of satisfactory supply* - generally a good approach for most of your existing suppliers - why else would you be doing business with them?
- *Trial orders, with monitoring/inspection to ensure they meet expectations* - can be a good approach for service providers, as well as

Out of Focus

Here are just two of the misguided ways, drawn from Jeff's experience, in which firms try to 'prove' supplier confidence to quality systems assessors:

- A scoring system for vendors is devised and applied to all current suppliers. It's quite amazing how all the suppliers the firm wants to retain manage to beat the minimum score.
- Threatening letters (with copies in the quality system file) are sent to vendors demanding that they implement a quality system and gain certification, or else.

It's hard to imagine that anyone could seriously believe that an intelligent human being would accept these as 'proof' of supplier confidence!

suppliers of goods; by this means you can build up a history on their performance with controlled risk to your organisation.

- *Approval of the product/service by relevant regulatory authorities* - this is appropriate for both service providers (e.g. NATA registration of laboratory services) or manufacturers (e.g. Electricity Authority approval of imported electrical goods).
- *Surveillance during production or testing at the supplier's premises* - sometimes the only way to be sure for overseas-produced goods.
- *Incoming inspection/approval of work on all orders - **as a last resort when all else fails**.*
- *Knowledge of market acceptance of the product and reputation of Customers who are using the goods or service* - may be an appropriate method when taking over a distribution franchise of a product.
- *Trade references* - common in the construction and mechanical services industries.
- *Assessment of a supplier's competence based on a visit and business overview.*
- *The supplier's commercial viability and ability to provide sales & technical support.*

- *Maybe just go and ask the purchasing person how they make a judgement in practice* - When all else is fruitless, some pragmatism and common sense often helps!

We don't suggest that this list is exhaustive, or that it be used as some standard check list. We're not only about approving suppliers - the focus of ISO 9001 is on coming to sound conclusions about the nature and extent of controls that ought to be applied to suppliers. The type and criticality of the supplied product are also factors to consider. So is any other evidence you may have of your suppliers' capability and performance, such as audit reports. The idea is to continually build up records over time of their performance.

*Many people believe that simply doing the checks from this list is all there is to it. Contemporary quality thinking goes well beyond that. Whilst it may be necessary to apply some or all of these checks initially, as you are building a supplier base, most of the hassle, expense, and other waste inherent in them can be eliminated by fostering long-term win-win partnerships with a limited number of suppliers. **Remember that this is actually one of ISO's Eight Principles of Quality Management!***

Flying with Common Sense

We spotted an example of common sense applied to supplier evaluation in the Sydney Morning Herald of 17 June 1994. It was a RAAF invitation to tender for building refurbishment work and required details of:

- Financial capacity
- Technical capacity
- Previous experience in this kind of work
- Quality systems used
- Claims performance record
- Time performance
- Occupational health & safety record
- Human resource management policy.

*Jo grumbles a bit about this example - he believes 'common sense' and 'calling for tenders' don't always go together. But he acknowledges that you may have to do this if you don't **know** any suppliers and that many organisations, especially those that are government-controlled, (still) don't have a lot of choice in the matter.*

"Most managers will argue that their company doesn't award business on the basis of price alone, even when they do. A common problem is that the measures of quality used are inadequate and thus business slowly drifts to the lowest bidder."

John McConnell in 'Safer than a known Way'⁽¹⁾

Once suppliers have been chosen and approved, purchase orders can then be raised. Good purchase orders clearly describe the product in terms of descriptions, specifications, standards, figure numbers, service required and other relevant information. If it is to be guaranteed as having been produced within a quality system, or you or your Customer want to have access to the vendor's premises to verify acceptability of the product, then that ought to be stated as well. (By the way, if this is done, it doesn't eliminate the need for all the regular checks that would otherwise be carried out).

Finally, you need to ensure that the order is reviewed for completeness and correctness, prior to distribution. Make sure that your purchasing system also effectively controls the methods of amendment and cancellation.

"The purpose of a tender is not to get the contract - it is to become the last remaining negotiator".

Instructor at a tender-writing course
attended by Jo a few years ago.

The degree of confidence that you establish in your suppliers should be the context within which you evaluate the risk of purchased goods and services not meeting your requirements. So supplier evaluation should balance incoming inspection regimes.

Production and Service Provision

All work is planned, processes are maintained in control and capable, so that they produce products which will consistently satisfy Customers' requirements.

The overall thrust of the standard is to work out the way you want things to be done so that only quality products (goods and/or services) are produced, and then to run all processes that affect quality according to plan, i.e. under controlled conditions.

Such controlled conditions must exist in manufacturing processes as well as in those to do with administration, sales, personnel etc. Service processes are included too - in fact it's more important for services, because you don't have the 'fall-back' position of remaking the product: The Customer experiences your first attempt, good or bad!

The first requirement then is to plan how your processes are to run. This involves establishing the sequence of activities, and deciding how they are to be carried out. Naturally, people who work in the process will need information on the various characteristics of the product that are necessary to satisfy Customers' needs (for both goods AND services, remember). They will also need process guidelines and instructions so that the work is adequately controlled.

There are often industry codes, product standards and other external requirements that these procedures need to reflect or incorporate. Here are some examples:

- The petroleum distribution industry must comply with the Australian Dangerous Goods Code, relevant Occupational Health and Safety (OHS) legislation, environmental legislation, weights and measures legislation, transport and traffic rules, and so on;
- Organisations making medical devices need to comply with Good Manufacturing Practice, as well as weights and measures legislation;
- Removalists have OHS considerations, transport rules, customs requirements;
- Financial advisors must comply with a range of requirements, including the Superannuation Industry Supervision Act, Insurance Code of Practice, Financial Planning Code of Ethics and Professional Conduct, Australian Taxation Office requirements, Australian Prudential Regulatory Authority requirements, Insurance Agents and Brokers Act and most recently the Financial Services Reform Bill.

Of course, the Corporations Law (overseen by the Australian Securities and Investment Commission) and Trade Practices Act (overseen by the Australian Competition and Consumer Commission), apply to company structures, so those requirements should permeate the work processes as well.

All in all, there is often a hefty load of external requirements to understand before we even think about setting our processes in place.

Suitable equipment needs to be used to run the processes, in both manufacturing and service environments. We must ensure that it can do the job. This means that some form of approval or commissioning needs to be adhered to as a documented standard practice.

In addition to ensuring that people adhere to approved methods, it is necessary to verify process intent - if only to protect you from those technical people who love to meddle in production processes! To verify that processes will produce the intended results, a system for process approval needs to be documented.

The next step is then to monitor processes and their outcomes to ensure that everything stays on track. 'On track' must be defined: people need to know the difference between *OK* and *Not OK*. Standards of acceptability for all relevant aspects of the product must also be defined. Sometimes numbers are suitable, although often colour standards, defect samples or illustrations are appropriate. Naturally, whatever measurement is undertaken, it needs to follow the four R's: Readable, Relevant, Representative and Reliable!

When post-sale servicing is provided to products, the quality system covers that activity too. The application of this is fairly infrequent - it applies mostly to post-sale work carried out as part of a warranty or contract. For examples, an air-conditioning design and construction company may have as part of its contract the requirement to service the system for the first year; a whitegoods manufacturer may have a service department to handle warranty claims, amongst other things; a TAFE may provide post-graduation support services such as assistance in finding employment.

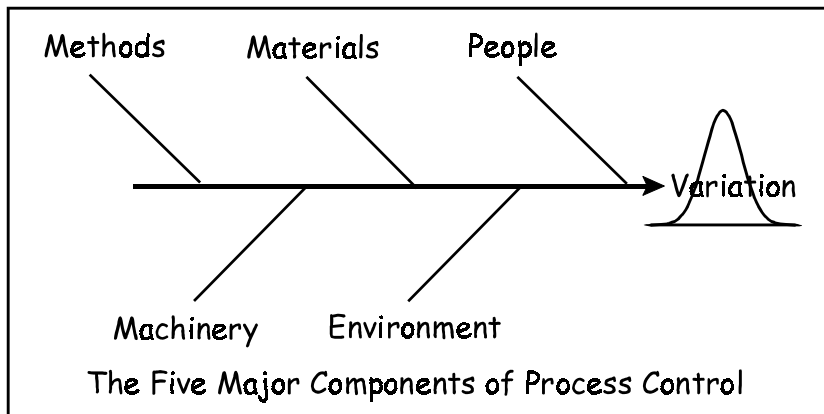
In these situations, ISO 9001 reminds us to carry out all work under the quality system, and to create records that verify it has been done correctly.

"Special Processes" require Validation

Sometimes there are processes for which it isn't possible to prove by testing whether the product is OK or will perform as intended. These are commonly called 'special processes'. In such cases, it is only possible to get an accurate view of how the product will perform by correlation with production process variables, and controlling these. Thus all of the five major factors, as in the fishbone diagram on the next page, are approved and then closely monitored to ensure that the goods or services are produced correctly and can therefore

"If you train your workers to be sensitive to variability, you'll have as many quality inspectors as you have employees."

Masaaki Imai



be guaranteed to match specifications. We need to keep records of the correct way to do things, of who is trained to control the process and on what basis this is granted. We must also keep continuous records of the process as it runs, to ensure it stays within the limits, and as proof of control. This whole exercise is called 'validation'. Re-validation may also be necessary from time-to-time to ensure that nothing has changed unnoticed.

Examples of special processes are:

- Ammunition manufacture (how can you be sure the thing will explode?);
- Food processing (how can you be sure it will be free of micro-organisms and foreign materials?);
- Flexible hose laying (how can you be sure there are no kinks?);
- Flame cutting of highly alloyed steels (how can you be sure it won't crack in service?);
- Adhesives manufacture (how can you be sure that they will stick and stay stuck?);
- Laboratory test methods (how can you be sure that the results are correct and meaningful?);
- Measuring equipment calibration (how can you be sure it really is measuring correctly?);
- Most service delivery operations (how can you be sure it will be delivered as intended?).

The only way you can be sure of product quality is by having proof that the carefully-designed process has been run exactly as intended.

Note that real ‘Quality Thinking’ says that there are, in fact, no special processes. It holds that the most cost-effective way of doing business is to apply this ‘special process’ philosophy to ALL your processes: the more you get the processes right, the less you need to worry about their outcomes.

Some additional dimensions of process control need to be integrated into our management systems for quality. These are basics, identified many years ago, but still relevant.

Identification and Traceability

All products are appropriately identified, and can be traced to their original sources when necessary.

When products are being made or handled it is normally appropriate to give some indication as to what they are. This is product identification. Usually this is done by identifying the grade, part number, product name, account name or number, or description and size. This is done either on the goods themselves, or on their location or container. Additional or alternative methods can also be used, such as client name (eg for removals, repair, education, various other services), order number (eg for retail or distribution), or contract number (eg for insurance).

Allied to product identification is the ability to audit the history of the creation and/or development of a product through applying a unique identifier to units of production - this is traceability. This allows you to trace its ‘history’ or ‘pedigree’, and thus helps you manage any problems that might occur later, perhaps involving recall. It doesn’t always apply. On the other hand, it tends to be a ‘given’ in a number of industries such as food, pharmaceutical, medical devices, chemical, engineering (especially pressure vessels and structural areas), legal and health.

Normally, physical products are produced as batches or

“Four questions to ask about any process making a product or a service:

- * CAN we make it OK?
- * ARE we making it OK?
- * HAVE we made it OK?
- * COULD we make it better?”

Frank Price in ‘Right first Time’⁽²⁾

lots, and are given some number at the time of manufacture. For continuous processes, date traceability is a suitable alternative.

Traceability can also be established by recording historical events over time. In the case of legal services and construction contracts, for example, a suitable technique is to record an individual reference for each document or event.

To prevent mix-ups and to ensure that only good product outcomes are delivered, the status with respect to evaluation outcomes must be clear at all times. For goods, this means knowing whether they have been inspected yet or not, whether this is an interim or final measurement, whether they have been passed or rejected, etc. This also applies to services - in that case we look at the status of the order, rather than that of physical goods.

Tracking can be by physical means, such as tags or floor areas. Computer tracking is also commonly used.

Customer Property

This is an often overlooked part of the standard, because it doesn't always apply. Goods and information that are provided by the Customer for your care, repair, use, or incorporation into other products need some special controls.

Customer-supplied product can take many forms: it may be only a part of the overall product makeup. For example:

- Packing product into Customer-supplied containers;
- The supply of certain high-cost items in the construction industry; for instance, the supply by the Customer of the cooling unit of an air-conditioning system to the air-conditioning contractor;
- The procedures provided by the certification body for which Jeff subcontracts.

On the other hand, Customer-supplied product may form the entire service. Examples of businesses where this would be the case include:

- Accounting and legal firms
- Removalists
- Records management companies

- Galvanisers
- Contract warehouses
- Funeral directors
- Software contractors
- Repair and Maintenance services
- Airlines and hospitals (if you consider the passenger or patient as the 'product', which Jeff does and Jo doesn't!)
- The Australian Taxation Office
- Computer processing bureaux
- Dry cleaners

*"Don't send your dry-cleaning to
□□□□□, they LOSE things!!!"*

Sign in Student Lounge at RMIT

In all these cases we need procedures to check the property upon receipt and then to secure it from damage, deterioration and unauthorised use or access while in our care.

Note that, even though we check and verify that the product is up to the required standard, this does not relieve our Customers of the obligation to ensure that what they give us is OK, where this is applicable. They must not regard our check as an inspection on their behalf, for example, where they direct-deliver goods to us from their supplier. If you think about the rules governing tax returns, you will see that the taxation people have this angle well and truly covered!

If problems such as loss or damage occur, or we find that the goods are unsuitable for the purpose provided, we need to record this (for both control and corrective action purposes) and tell the Customer. Basically, the requirement is to care for it as if it were our own, and to act in ethical ways if there are problems.

Note that there may be contractual arrangements involved here, hence there may be a connection to the section on Customer-related processes.

Preservation of Product

This requirement normally applies to the obvious physical goods in our system, and also to intellectual property, data etc, whether owned by our own organisation, or provided by suppliers or Customers. We need to define rules and provide information to ensure these things are kept in good condition. They must be:

- Handled with care;
- Stored securely and periodically checked for deterioration;
- Packed safely;

- Preserved from deterioration and becoming mixed up;
- Delivered in good condition.

Sometimes other external rules also apply, such as HAZCHEM or the Australian Dangerous Goods Code.

Control of Monitoring and Measuring Devices

As well as processes, all equipment used to provide measurements for product decision-making is also verified as being both capable and in control.

The focus of this element of the standard is on ensuring that we have appropriately accurate and precise equipment for measuring and testing. The most difficult part in conforming with this requirement is working out what needs to be calibrated - not everything does, and money can be wasted by calibrating equipment unnecessarily.

The equipment of which we need to be really sure, and which therefore needs to be calibrated, is anything that has a major influence on determining whether product is in specification. That is, anything used either to directly control processes (especially 'special processes'), or for product acceptance inspections. Let's call this 'Class A' equipment. It **MUST** be calibrated.

"We dispense with accuracy."

Sign in a pharmacy window

Ambiguity creeps in when we review non-Class A equipment. We may locate equipment which doesn't need to be calibrated, but it would be useful if it was because we could make some expensive mistakes if the

measurements were unreliable. Let's call this 'Class B' equipment. It **SHOULD** be calibrated, depending on the risk involved.

The remaining equipment is 'Class C'. Typically this is used for indication only, and we don't rely on its specific output measurement, other than to know if something is actually working (such as a compressed air line), or to include the output into a larger decision process.

The monitoring and measuring devices referred to in this element cover all of the usual dials, gauges, etc., as well as items like test software and comparative references such as templates. These need to be verified as accurate prior to use, and at appropriate time intervals thereafter. This time

interval can be decided by checking for wear, or by monitoring the rate of drift of the measured value from the standard. Obviously you need to keep records to be able to do this and to provide evidence of control.

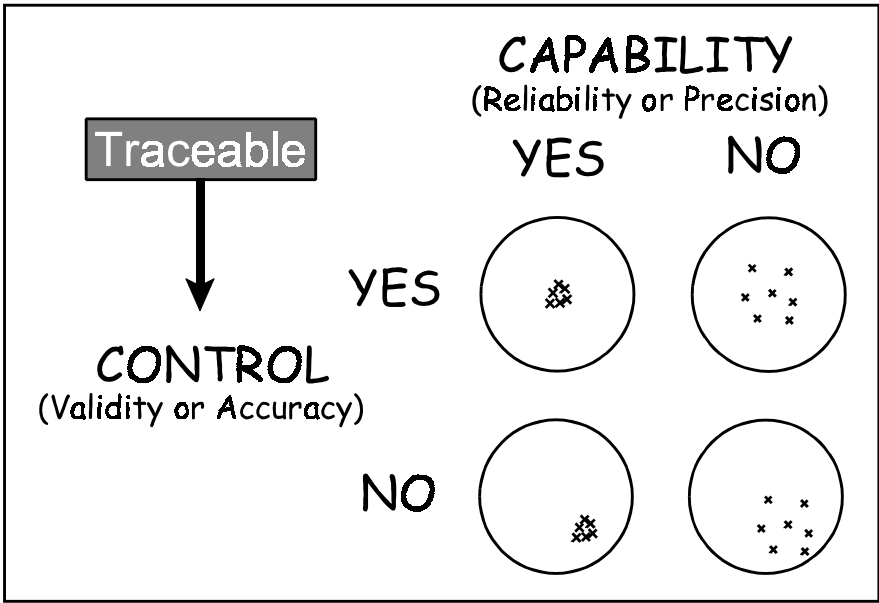
Sometimes Customers want to know that the equipment is adequate for the job, and may specify that relevant information be provided to them.

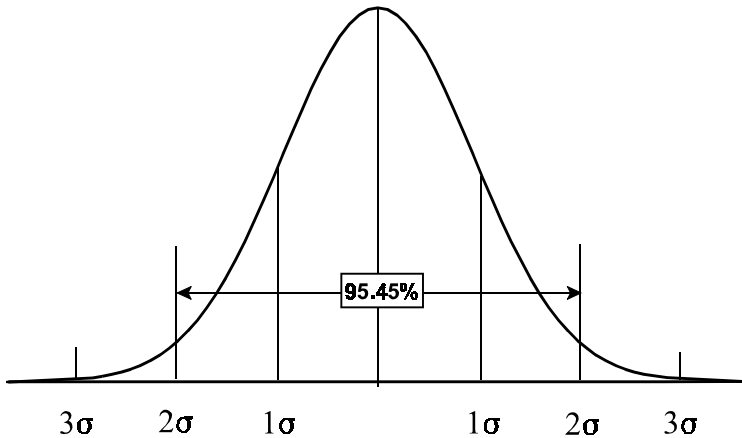
Having worked out what needs to be controlled, the next step is to decide a method for doing it. Keep in mind that all measurements, no matter how detailed, are still only estimates of some true value which nobody knows. Therefore our approach to calibration needs to be appropriate for the intended application of information we are seeking to obtain.

The basic issues inherent in measurement are:

- ACCURACY, i.e. how close the average of a repeated set of measurements is to the ‘true’ value;
- PRECISION, i.e. how much scatter (or variation) there is when we do the same measurement repeatedly.

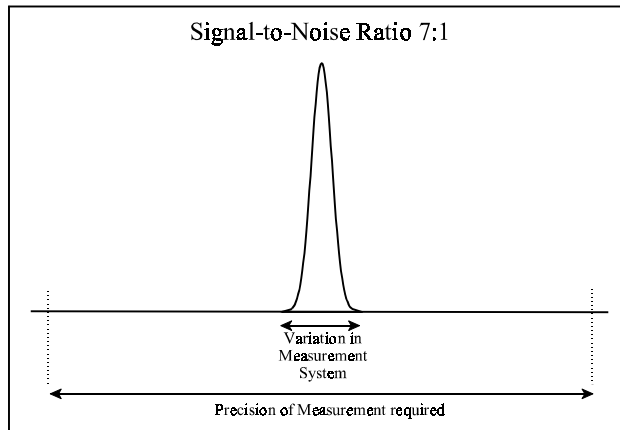
When these are combined, we ensure the equipment is both sufficiently accurate (i.e. on target) and precise (sufficiently sensitive) to do the required job. The diagram below illustrates this concept.





The next step is to ensure that when put into the work situation, which brings together people, equipment, the test environment and the tested object, the total system variation is not going to create too much 'noise' with respect to the measurements being made. This is called 'measurement uncertainty', and is taken as the range from -2σ to $+2\sigma$ around the measurement mean (which equates to a certainty of about 95%). Note, by the way, that all this applies only if the measurement follows the so-called 'normal distribution'. There are situations where this is not case, so if in doubt, check with a statistician.

Finally, the signal-to-noise ratio should be no less than 7:1 to 10:1. This means that the variation in the measurement system should be very small compared to the precision required of the actual measurement upon which decisions will be made. This ensures that the measurement system as a whole provides reliable outcomes.



In summary, a commonsense approach to proper control of measuring equipment ensures that:

- the equipment is of the appropriate accuracy and precision for the purpose;

- it is checked against other equipment that has itself been calibrated, so that we have traceability (i.e. a pedigree) to the national measurement standards. This ensures proof of accuracy;
- the method for calibrating the equipment is documented, so that it's done correctly each time. Calibration is itself a (special) process and needs to be considered as such.
- the equipment is handled and stored appropriately, protected from tampering, and used in a suitable environment.

If you find that, when you calibrate the equipment, it is outside the acceptance tolerance, you need to remove it from service, then review all of the inspection results since the last time you calibrated it, to verify that what you have produced is still in tolerance. If not, take appropriate action, such as special testing, advice to Customers, or even product recall.

"The best measure of a man's honesty isn't his income tax return. It's the zero adjust on his bathroom scale."

Arthur C. Clarke

Monitoring and Measuring our Processes and Products

Having calibrated our measuring equipment, we can use it with confidence to manage our value-adding processes. We can also check the process outcomes (products) to confirm everything is on track. This used to be called 'inspection'. Modern approaches to quality management emphasise the high cost and futility of relying on inspection as a primary means of quality assurance.

The alternative approach is:

1. **Confirm** that the value-adding processes are *capable* of producing the intended outcomes. They need to be sufficiently stable and properly targeted to produce a predictable outcome. They also need to have variation that fits with Customer expectations. This is called 'process capability'⁽³⁾ and our measurement processes are the means of assessing this. If our processes are not capable, we need to make improvements. In fact, this is so important that QS-9000 does not permit production unless defined levels of process capability are achieved.

2. **Monitor our processes** to ensure they remain in control and capable. If we find that processes are deteriorating or drifting, we need to find out promptly so we can take corrective action. The costly alternative is to find out after we have produced products or delivered services that result in Customer complaints.
3. **Check our products** to confirm the success of our process management, prior to release. Note that release is given by authorised people, and this is recorded. Our acceptance criteria are used to make the final judgement (see 'Begin with the Customer' at the start of this chapter).

Control of non-conforming Product

Defective and unsuitable products are identified, isolated and disposed of appropriately.

When we carry out inspection or measurement and find goods that don't fit the specified requirements, we need to ensure they are kept separate and then dealt with.

To deal with non-conforming product properly, we need to have a system that does the following:

- Identifies what is affected and how;
- Documents the details;
- Evaluates the extent of the problem;
- Decides disposal options, such as reworking it, submitting it to the Customer for decision (eg with a concession), applying it to a different grade, or scrapping it;
- Communicates what has happened to everyone who needs to know. Sometimes this includes the Customer, and we may be required to keep records of repairs and rejects, if that is part of the contract. ISO 9001 also infers that contingency plans need to be established for the possible event of nonconforming products in circulation. Examples could be recall procedures for food or pharmaceutical products.

*Another reminder about **Quality Thinking**: This part of the standard, like several others, requires you to document your procedures for dealing with **WASTE**. In the ideal world, there are no non-conformances. We're not saying that we live in an ideal world. Nevertheless, we **ARE** urging you to channel as much as you can of the energy and resources you put into this requirement towards preventing the need for having to deal with non-conformances at all.*

More on that in the next Chapter.

Chapter 9 - Key Points

- Management of Product begins with a Quality Plan;
- The starting point is focussing on what Customers want and what you will give them;
- If product design and development is part of your operations, it is an important part of the system;
- Garbage in - garbage out. So proper management of purchasing, suppliers and contractors is vital;
- Next, the processes by which you create your product must be managed to be capable and in control;
- Special processes are processes where the only way you can ensure quality is to ensure the processes run exactly as intended (and it is a good philosophy to consider all processes as special);
- Special considerations apply when dealing with Customer property, such as Customer-supplied product;
- Monitoring and measuring equipment used must also be capable and in control - it must be accurate, precise, and reliable;
- Processes, as well as products, must be monitored to confirm they are running to plan;
- Appropriate monitoring of processes and products helps prevent futile reliance on inspection;

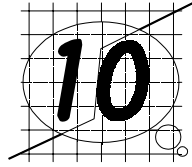
- Although prevention is better than cure, you still need a process for dealing with non-conforming product.



1. *“Safer than a known Way”*
by John McConnell
Delaware Books, 2nd Ed, 1991, ISBN 0 9588324 3 9
2. *“Right first Time - using Quality Control for Profit”*
by Frank Price
Wildwood House, 1986, ISBN 0-7045-0522-3
3. Process capability is normally expressed as a ratio based on the width of the specification compared to the process variation. Good process capability can be pictured as kicking a football neatly between the posts. Poor process capability is like trying to push a watermelon through a keyhole - a lot of effort and waste! We describe the concept in detail in *‘The QS-9000 Continuous Improvement Handbook’*.

“No-one can guess the future loss of business from a dissatisfied Customer. The cost to replace a defective item on the production line is fairly easy to estimate, but the cost of a defective item that goes out to a Customer defies measure.”

W Edwards Deming in ‘Out of the Crisis’



ISO 9001 Requirements - Management of the System

"I must create a system, or be enslaved by another man's"

William Blake

In this chapter on the requirements of ISO 9001, we examine those aspects that address management of the quality system itself. The purpose of these requirements is to ensure that the management of product takes place in a sustainable way, with risks managed throughout the process. These requirements are covered within Sections 4 and 8 of ISO 9001.

Because this is so important, ISO 9001 places special emphasis on the need for these parts of the system to work especially well. The standard insists that control is reinforced by specific procedures for the relevant aspects.

Document Control

Provide a service within the organisation to ensure that people have all of the information they need to do their work properly.

The management of information within the organisation is vital to being able to create goods and services that ultimately satisfy the Customers. That's what document and data control is all about. We do this by ensuring that people are provided with the information they require to be able to do their jobs properly, and also by ensuring that this information is kept up to date. And if you have data and documents supporting your systems, it makes sense to have a system supporting your data and documents, so that they will continue to be used appropriately.

"You've got to have the documents you know, Min".

'Henry Crun', in several Goon Shows

There is a large range of document types that ought to be controlled. This includes, of course, the quality system documents themselves (quality manual, procedures, work instructions and forms). It also includes all of the other sources of information used to identify and meet Customer requirements, such as:

- Position descriptions;
- Computer access approvals (together with position descriptions - these define authority and responsibility allocations);
- Purchase orders and suppliers lists;
- Contracts and sales orders, and other information provided by Customers such as engineering drawings;
- Packaging specifications, drawings and artwork;
- Product manuals;
- Test methods and calibration methods;
- Training manuals, structured training guides and competency criteria;
- Maintenance manuals;
- Recipes or formulations and product specifications, together with associated data such as bills of materials;
- Data held in computers, such as maintenance programs, key Customer information, price lists and discounts, and also the data manipulation software itself;
- Externally sourced standards, codes and regulatory documentation which relate to goods and services, or to the management of the quality system itself;
- Emails and other communications that relate to the Customer or products and projects;

- Databases that are used for product development, Customer communications and the like.

For each of these, the relevant procedures need to describe how the documents, and any changes to them, are reviewed and approved for use, and who does this. It almost goes without saying that these approvals must be meaningful and based on a knowledge of the significance of the information. The inventory of controlled documents, and their current (latest) issues need to be recorded. It also needs to be readily available, so that people can check that they have the correct versions in use. To make the whole system meaningful, information must be distributed to all who need it, and maintained so that it remains usable in hostile environments.

When updated documents or information are issued, the nature of changes is communicated to users so that they can be sure they work to the new methods or information. The superseded versions are taken out of the system, or if they are retained (eg for historical purposes), they are clearly identified as superseded, so they won't be accidentally relied upon as the latest version.

Superseded Documents

Sometimes it is necessary to control superseded documents. Examples include material standards used for construction of hazardous equipment (such as power stations or pressure pipelines), or for situations where incorrect substitution of material may result in risk exposures, such as military equipment.

In this case, the controlled standard acts as the 'organisational memory', and its use ensures the design is not compromised by the use of substandard replacement components. (This is called 'configuration management').

Grounded

"This week the Civil Aviation Authority took the unprecedented step of placing XYZ [an Airline] on probation. It must improve its haphazard maintenance procedures and documentation handling or face sanctions."

"Grounded": The Age, 14 April 2001 S.2 p.1

Computers to the Rescue

In the past, document control was often a major difficulty for organisations. In paper-based systems, documentation all had to be updated, copied, distributed to users and kept in good condition. All of this was costly. The advent of electronically-managed documentation systems has all but

removed the former problems associated with document maintenance, particularly when specially-developed workflow management applications and/or intranet systems are used⁽¹⁾. In electronic document management systems, the current issue is always available, and distribution is no longer required, as this is handled via the network. However, there can be a downside: just as the document control issues evaporate, so the documents' visibility may also evaporate if a well-designed user interface is not put in place. We have seen many examples where software designed for other purposes, such as email, is used to store and distribute management system documentation. If it becomes too hard to find the documents, people tend to abandon the system altogether.

Control of Records

Records are kept to show that Customers' requirements have been met and that the quality system works effectively.

All organisations keep records. We are usually most familiar with accounting-related records and the retention requirements for them. We also need to keep records to show we have met our Customers' requirements, and to demonstrate, if necessary, that the quality system works effectively. Throughout ISO 9001 it is clearly indicated when records are specifically required. It does this in at least 19 places in the standard, referencing clause 4.2.4 each time.

However, we find that many organisations haven't given much thought to how they will handle their records. For many, the first step therefore is to decide what records will be kept, and for how long. The latter can vary a lot: for a power station construction project it might be 30 years; for a packaging manufacturer it might be 3 months.

Archivists talk of the 'records continuum', which essentially is the lifecycle process for records. It starts at the point of creation of a record, and continues on through all stages until archiving, to final disposal. ISO 9001 requires us to address this in our management system. The method of collection,

indexing, filing and storage/archiving needs to be designed and recorded. How we maintain and dispose of them needs to be clearly defined (we all remember newspaper headlines like "Confidential medical records found at tip!"). We may want to look at the

"Nothing helps in the proper running of a business more than a few hundredweight of records."

Mark Spade in
'How to run a Bassoon Factory'

records from time to time (presumably the main reason for keeping them), so they need to be retrievable and protected from deterioration, loss and damage while in storage.

In this context, it is useful to consider which records are 'business critical': that is, the records which, if lost, would jeopardise the stability of the organisation or its ability to fulfil contractual obligations and expectations.

Sometimes our Customers will want to look at our records too - normally this would be written into whatever contract we have with them.

For those who are particularly serious about records, Standards Australia has developed the AS4360 standards on Records Management.

Many people think that quality systems create mountains of paperwork. This only happens if they are badly designed and implemented. The reverse may be true: we know of several companies who were able to rid themselves of unnecessary records after reviewing their need. **One company actually disposed of over 60 filing cabinet drawers of records when they got serious about this aspect of their business!**

Corrective and Preventive Action

The causes of problems, and potential problems, are identified and corrected, and followed up to ensure the management systems are robust and reliable.

Corrective Action can be considered as a reactive driver for improvement and one of the doorways into planned continual improvement. In his experience as a quality systems auditor, Jeff finds that this is one of the aspects with which many companies have the most problems.

Let's make it clear however, that not every little thing that goes wrong requires a major enquiry. We need to take action based on the size of the problem, on the impact in the organisation and on Customers, and on the risks involved. Sometimes we will deal with them on an event-by-event basis; at other times it is sensible to aggregate them and see the overall picture, such as for credit notes or process yield problems.

The requirement covers all the various kinds of problems in business processes. These could be product problems, operational problems, Customer complaints, credit notes, Customer returns, audit findings, computer errors, accidents, etc.

"Prevention is better than cure"

Old Proverb

We need to recognise these problems as rich sources of improvement opportunities. 'Problem' is not a dirty word! In first instance we need to plan corrective action to get things back on

track, and to ensure that the action is actually taken and is effective. And then we need to remind ourselves that all problems are outcomes of processes: What was the original root cause of the problem? We need to analyse and dig deep to find the real root causes, and take steps to deal with them (this may mean the redesign of some processes), again applying controls to ensure we know whether we have been effective. Once a process improvement has been made, all relevant procedures need to be updated to 'lock in' the improvement. This may also involve training or re-training.

Beyond this 'fix-it' approach, we need to be proactive in finding causes of potential problems as well, and improve our systems so such problems don't happen in the first place. This is really the basis of proper planning, and it is curious that ISO 9001 attaches the section on preventive action at the very end, when it is really the first thing to consider, and in healthy systems is a part of the whole process from beginning to end.

Preventive action occurs in all sorts of ways: training, planning, audits, process checks - even the establishment of the management system itself is preventive in nature. There are a number of methodologies that have been developed with problem prevention in mind, for specific industry types. For example, the Advanced Product Quality Planning process and Failure Mode and Effects Analysis (FMEA) that the automotive QS-9000 standard require are overtly preventive in their focus and demands. Hazard and Critical Control Point Analysis (HACCP) for the food industry seeks to identify all sources of contamination and loss of process control to prevent food poisoning. Critical Care Pathways methodology is specially-developed as a planning and patient management system in hospitals. Some organisations use risk-based approaches to develop extra strength and control in their quality systems, and in safety and environmental systems as well.

Internal Quality Audits

The system is periodically audited in a planned and systematic way to identify any emergence of decay.

Audits are really a form of review to check the health of the system, and to confirm that the way we think we are doing things (as described in our system documents) is the way we actually do them. Conformance of the system can be considered in the context of whether the management of

product matches the way we have planned it; we can also consider it in the context of whether our system incorporates and applies all of the necessary requirements of ISO 9001. We can also review whether the management systems are operating in the way that the organisation's management intended them to.

If audits are well-conducted they will not be seen as policing activities or as attempts to coerce people into an unfriendly or unmanageable system - they will be positive experiences for everyone involved

However, many organisations write audit procedures as if they were auditing nuclear power plants: they are very restrictive, overburdened with documentation that adds little value, and very hard on everyone involved. A procedure is necessary, but it should rely on the competence of the auditors to manage the audit process effectively. The procedure should explain how audits are planned, carried out and reported. It needs to explain the accountabilities in the process, and the records that are produced.

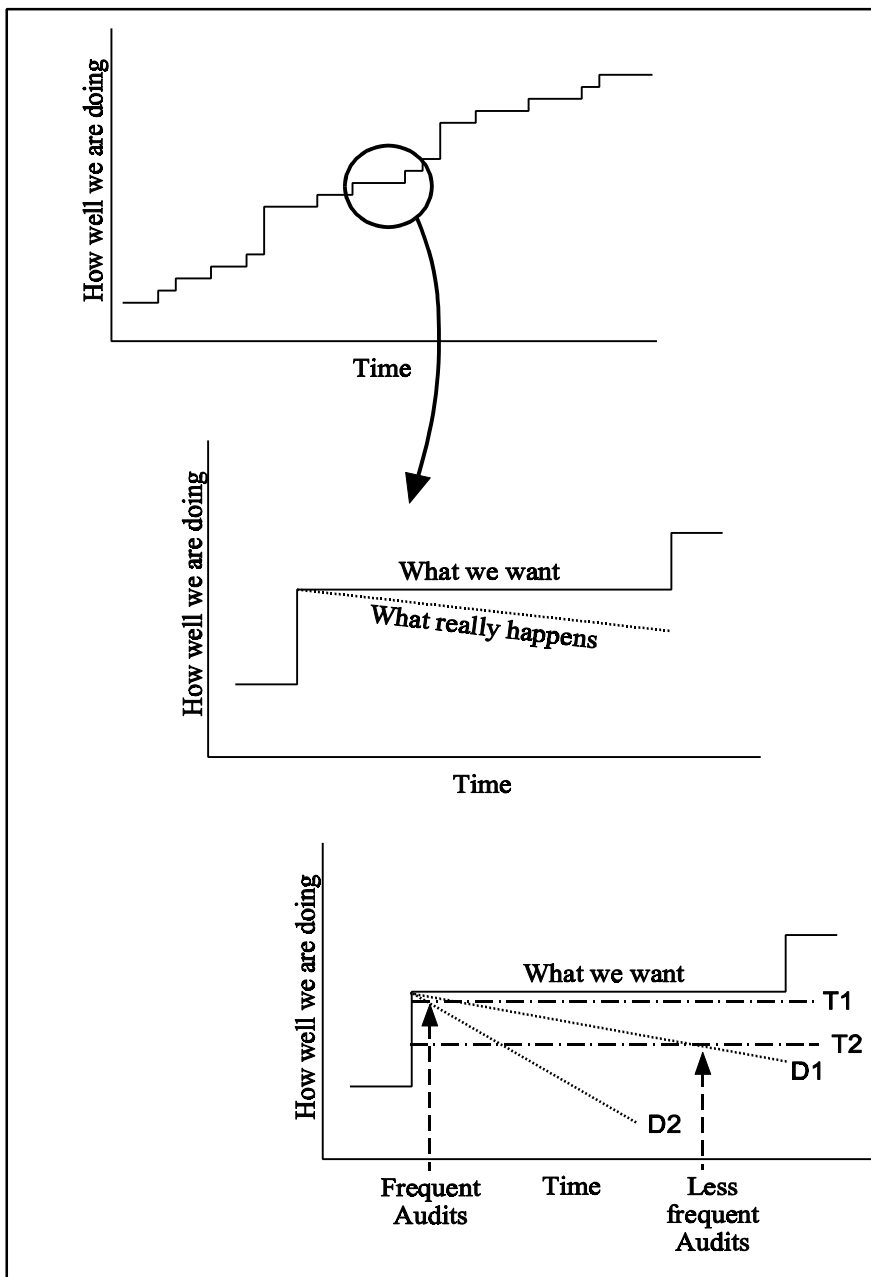
The system needs to be audited in a comprehensive manner, with special emphasis on key, higher risk- exposed processes, and those which have been found to be less stable and prone to deterioration, both in past audits and from experience. It is a matter of balancing resources with consequences.

If you're technically inclined, you may recall that the second law of thermodynamics tells us that all systems tend to decay unless we apply energy to them. Audit helps us to detect this decay before it becomes serious. Let's try to illustrate this with the picture on the next page.

The top graph shows how a quality company continuously improves productivity (or whatever other measure of success you want to use) by a combination of small step-wise improvement, and the occasional innovative leap or breakthrough.

However, if we look more closely at one of the steps - as in the centre graph - we see clearly that, between improvements, there are periods of consolidation. Ideally, things remain steady during this time. In reality, there is always some deterioration. Auditing helps to detect and correct this.

How often we audit depends on how quickly the gap is likely to develop (the rate of degradation), and how critical the deviation is (the tolerance). The bottom graph shows two degradation rates, slow (D1) and fast (D2). For example, most despatch processes degrade very little over time. On the other hand, sales training (and many other forms of training) often degrade quickly without reinforcement.



The bottom graph also shows two tolerance levels, low tolerance (T1) and high tolerance (T2). Examples might be, respectively, the shutdown procedure of a nuclear power plant and the process of maintaining the factory garden.

So, a very critical process which has the potential to deteriorate rapidly (T1, D2) needs frequent auditing; less critical processes which are more stable need less frequent audits (T2, D1).

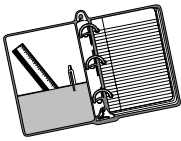
The results of audits need to be documented and referred to the management for timely corrective action by them - you may recall our earlier quote by Tribus to the effect that managers work on the system. Some areas may need to be re-audited to verify that the corrective actions have been taken and are effective.

It's a fundamental principle that people don't audit their own work. This has nothing to do with trust or honesty - we humans find it difficult to be objective in such situations. In addition, an outside impartial pair of eyes can be helpful in seeing things in a different perspective.

Auditing is a service provided by auditors who regard auditees as Customers of the audit process, and afford them Customer status. It is intended to be a help, not a hindrance. In Chapter 17, we'll expand on this important issue of auditor skills and technique.

Chapter 10 - Key Points

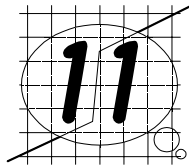
- A system can only be effective if it is properly managed - a good quality system therefore needs to contain provision for this to happen;
- Documents are vital to the system, but unless they are properly controlled, they could turn from an asset into a liability;
- I.T. systems, if used wisely, can be a great help in running effective and efficient document control systems;
- Similar observations apply to the keeping and control of records;
- Corrective action ensures that problems are identified, corrected and followed through;
- Preventive action anticipates potential problem and prevents them from occurring in the first place;
- Internal audits are checks on the health of the quality system; they should be positive and helpful experiences;
- Frequency of audits depends on criticality and stability of the processes involved.



1. An example of a workflow management product with which we are familiar with is 'Paradigm'. Workflow management applications not only handle document control effectively, but can also manage the whole records continuum, including fax and email records. You can find out more about how this application solves document control issues, amongst other things, from Paradigm Software's website at **www.paradigmsoftware.com.au**

"Here's to plain speaking and clear understanding"

Sydney Greenstreet in 'The Maltese Falcon'



ISO 9004: A Holistic Approach

*“Success is not the result of spontaneous combustion.
You must set yourself on fire.”*

Reggie Leach

We’ve looked at the underlying quality management principles and discussed the ISO 9001 requirements at length. Let’s now take a brief look at an organisation that doesn’t just meet the requirements of 9001, but also implements the principles and the spirit of the standards as described in ISO 9004. In a quality sense, a 9004 organisation is well ahead of one which has mechanically applied 9001, but would still have some way to go towards meeting the ideals defined by international models of business excellence. More about this in later chapters.

Overall Approach

A 9004 organisation uses the eight quality management principles as its quality framework to facilitate achievement of its quality objectives. It takes an holistic approach to quality: it knows that all of its activities affect not only its Customers, but also society and the organisation itself. All activities are thought of as processes, with inputs and outputs. These processes are properly planned and managed to prevent things from going wrong and to ensure that what the organisation regards as important is achieved. Quality thinking is integrated throughout the organisation’s systems, including the financial system, so that decisions about quality matters can be made on a sound business basis. Whereas ISO 9001 just focusses on effectiveness, ISO 9004 builds the extra dimension of efficiency into the approach.

Consideration for all Interested Parties

The things that the organisation considers important are founded in the motivation to produce worthwhile products that meet real needs and comply with relevant standards, codes, laws and specifications so that they ultimately satisfy Customers’ expectations. Because the focus is on the

"If you were asked 'What are the two or three most important objectives of a business?' many people would begin with: 'to make a profit'. But profit is an outcome, a consequence of a variety of business activities and decisions. It is not in itself an objective."

Keith Hoffman

prevention of problems, they are produced economically and can be priced competitively.

Care for the environment is a factor in the whole product equation. Overall, the impact of the

organisation's operations and products on internal and external environments is taken into account in the design and management of the organisations' processes. 'Other interested parties' also includes employees and suppliers. Their needs are addressed as well - more about this in the next few pages.

Management Commitment and Involvement

Management at the highest level takes a personal interest in quality. This commitment is evident from their involvement. They establish policies covering all of the important aspects of the business, including quality. The policy for quality is consistent with all other policies. Management ensures it makes sense and is understood, as well as interpreted down the line and integrated into the way people (including management themselves) work, talk and act. Because people understand the policy, they naturally want to have clear objectives and these are in place and deployed throughout the organisation. They are consistent with other objectives in the organisation and form an integrated whole, from top to bottom.

The organisation is staffed and equipped according to what it takes to turn the vision into reality. That is, management puts its resources where its rhetoric is.

Management 'close the loop' by regularly reviewing the organisation's quality performance. They review the ongoing relevance of the policies and the success with which they are embraced. They review the objectives and the extent of their achievement. They are personally committed in all these activities, which are collectively called 'due diligence'.

People

Through the quality system, everyone knows what they are expected to do and how it all fits together with everyone else's jobs to achieve the overall objectives of the organisation. Quality awareness is constantly emphasised and everyone throughout the organisation is encouraged towards ever higher

performance levels in a quality context. Quality achievements are properly measured, publicised and rewarded. As a result, people are more highly motivated.

"Our objective here is to create a safe environment for all our people. By this we mean safe physically, socially, emotionally - every way."

Manager of a world-class automotive plant

People are involved in all aspects of the business. Care is taken to recruit people most suitable for the relevant jobs, and this also applies to job assignment. Appropriate training and development are provided and followed through. People's personal aspirations and job interests are aligned wherever possible. People at all levels are aware of their contributions to the organisation's objectives and have all the information they need to do their jobs to the best of their ability.

The work environment is a combination of human and physical factors, aimed at positively influencing people's well-being, their ability to work effectively and efficiently, and their scope for realising their potential.

Systems

The Quality System

To assist in the achievement of the objectives, there is a planned and systematic approach to the creation and delivery of products and related activities. The quality system is carefully tailored to the needs of the organisation. It is appropriate in all respects and really does ensure that the Customers' needs and expectations are met. At the same time, it looks after the organisation's interests and its social and environmental responsibilities, as well as the concerns of all other parties that have a vested interest in the success of the business.

The quality system reflects management's focus on the prevention of problems and on proper control of all processes. The effective operation of the quality system has a high priority, as does its constant maintenance and continual improvement. Thorough reviews of its ongoing suitability and effectiveness take place regularly.

Like the quality policy and objectives, the quality system is well understood and accepted by everyone in the organisation. The system contains no unnecessary procedures or other unnecessary documents. At the same time, the documents that do exist are clear, simple and to the point. They are comprehensive and unambiguous, so that people can determine how to do their work properly, to the appropriate standard.

"It'll be all right on the night."

(Theatrical quality management system)

Because it is thoroughly integrated with the organisation's purpose and with its other systems, the quality system also helps everyone to know how the things they do

interact with the rest of the organisation, and how they contribute to the organisation's overall objectives.

System Thinking

Organisation-wide system thinking starts well before products are conceived. Marketing processes are part of the management process and ensure that the products are truly reflective of the Customers' needs and expectations, as well as being properly matched to the capabilities of the organisation. They feed information forward into the organisation's planning processes, and also have effective feedback mechanisms to continually monitor product acceptance, performance and Customer satisfaction.

This information is the basis on which the goods and service products are designed. As mentioned, the organisation's policies and values, social responsibility, safety, environmental considerations, and statutory requirements are all factors in this process. The organisation knows that all its processes are interconnected and interdependent. The activities that take place don't occur in isolation and affect other processes and activities in the organisation and, of course, shareholders and other interested parties as a consequence. Nothing is done without considering the total effect on the organisation and all its stakeholders.

Basic compliance is a matter of course, and requirements are exceeded wherever this is an appropriate strategy.

Designs are checked by everyone who is involved in the process to ensure they address the Customer requirements outlined by marketing. They are properly specified and can be consistently delivered at the required standard. The organisation only goes ahead when it is sure that it can support the product launch.

Problem Management

In addition to process monitoring, the product is inspected to verify its acceptability to the Customers. When problems are suspected or identified they are taken seriously and action is swift and effective to control them and to ensure they are traced to the source. There is a deep understanding of the

way variation works in the system, so people know how to distinguish between system causes and special causes. They apply a range of process-monitoring, problem-solving and continual improvement techniques. Changes are made to the relevant processes and parts of the system, to ensure problems don't recur. This is backed up by a system of audits and reviews of the processes, procedures and products to ensure it all works together as it should. Audits are reported at the highest levels and the findings and recommendations are acted on as a priority. The organisation has the records to prove all this.

Time is Money

Masaaki Imai, author of 'Kaizen', says there are four basic activities:

- Process:

Most processes have cycle times measured in seconds;

- Inspection:

Usually takes seconds or minutes;

- Conveying:

which may take minutes, hours or days;

- Stagnation:

This includes storage and may take hours, days, months or even years.

Only the first of these adds value. Part of the second may be necessary. The rest is waste!

Measurement, Process Control and Improvement

All processes are planned and monitored to ensure they run as intended. Important aspects are clearly specified; information is properly organised and kept up to date. Processes are verified as to their capability of producing to the required standard of output. Knowledge of the correct way to do things is not merely committed to memory (although people are given all of the training and support they need and deserve), it is also maintained within the Quality System.

Appropriate measurements are defined. Relevant data is collected at various points in the process and analysed. Appropriate statistical methods are used routinely to turn the data into information for monitoring, decision making and continual improvement.

Everyone in the organisation knows that new and better methods are encouraged, so they are also aware of how to go about the orderly approval and integration into the system of changes to processes. It almost goes without saying that there is a high priority on maintaining equipment and accurate measurement systems.

Supplier Relationships

Suppliers come under the heading of ‘other interested parties’ and in 9004 organisations, there is a policy of partnering key suppliers and fostering good working relationships with all of them, rather than taking adversarial or short-term tactical positions. There is a desire to really understand how they control their products and processes, so that cost-effective complementary controls can be put in place to get the right level of inspection - the right level being the minimum possible. As inspection can be considered as a subsidy to suppliers (for which our Customers ultimately pay), the organisation assists its suppliers where it can, to help them improve. The overall objective is to reduce waste and costs and maximise value, through a supply chain that is aligned with optimal service to the ultimate Customer.

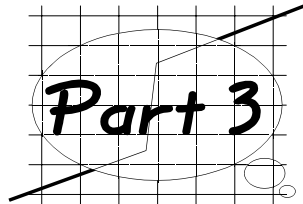
As far as possible, relationships are based on openness and trust and a mutual commitment to each other’s success. A business version of ‘the golden rule’ is applied: the organisation treats its suppliers the way they would like their Customers to treat them.

Chapter 11 - Key Points

- ISO 9004 takes a holistic approach to Quality Management, based on the eight principles;
- It represents an overall ‘big picture’ approach to quality, of which the requirements of ISO 9001 are a subset;
- It is process-focussed;
- It considers continual improvement as inseparable from Quality Management;
- It is concerned with developing quality management systems that don’t just ensure Customers are satisfied, but go much further and really support organisational success in every respect.

“Whether it’s broke or not, fix it; make it better - if necessary your whole company.”

Anita Roddick



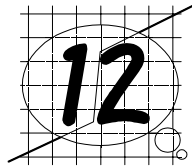
Design and Implementation of a Quality Management System

“Even the best management system is defective if it is not effectively implemented. The system must be capable of being understood by those expected to implement it.”

Longford Royal Commission Report (p.202)

“Nothing would be done at all if one waited until one could do it so well that no one could find fault with it.”

Cardinal Newman



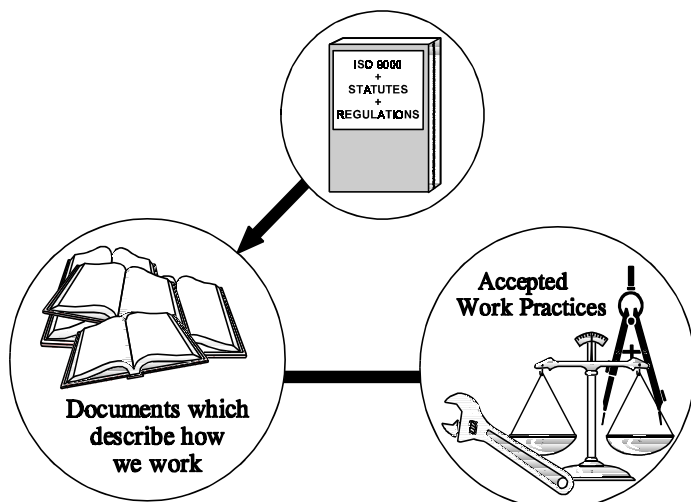
Basic Design of a Quality Management System

*“Begin at the beginning”, the King said, gravely,
“and go on till you come to the end; then stop.”*

Lewis Carroll: ‘Alice in Wonderland’

The first step in developing a working quality system is to design the system itself. As obvious as this may seem, organisations frequently give little thought to this: the result is that bulky, disjointed and dysfunctional systems are developed. Usually these are then followed by the complaint that “*ISO accreditation [sic] doesn’t work and only creates a stifling bureaucracy*”.

It need not be like this. The components of a quality system are fundamentally quite simple. The first step is to develop a set of documents describing the accepted practices of the organisation: in other words, the way work activities are carried out, and are to be carried out. Into these documents we incorporate all of the relevant requirements of our organisation, with which we intend to comply when doing our work. This includes the internally-defined requirements, the requirements Customers provide us with, and of course any statutory and regulatory requirements.



ISO 9001 also describes clearly which work activities need to be documented: those which affect or have a bearing upon our ability to identify, specify and meet our Customers' requirements.

Customers' requirements are normally identified and specified in one or more of three key processes. These are:

- *The sales process:*

This is where we agree on and commit to the deliverables in the goods and services to be supplied. It follows the marketing process in many organisations, in which Customer needs and preferences are identified, and input to the business.

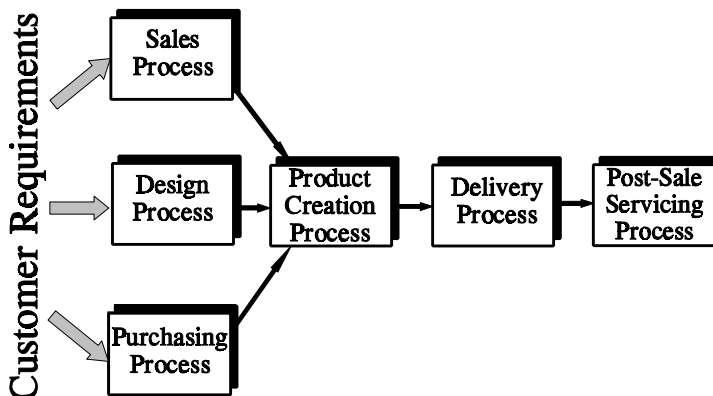
- *The design/development process:*

For many goods or services the product to be provided is developed, specified and verified internally - the sales process which follows is basically a transaction in which the Customer says: "*I'll have one of those please*". Examples are the design of whitegoods, and the design of menus in a restaurant. Again, it should be closely linked to marketing.

- *The purchasing process:*

In some industries, this is the primary means of specifying Customers' requirements and of ensuring that they are achieved. Examples include stockists and wholesale distributors.

At this point, we can take our value-adding chain from Chapter 7 and develop it further into a schematic diagram of the key value-creation processes. This is sometimes called a 'process map'. Here is a generic version:



You will see that Customer requirements are an input of information to the organisation. These are processed by the organisation, adding value all the way as the requirements are turned into real products, through the enterprise's core processes. These products are then delivered to the Customer. Sometimes our involvement extends to include service support after delivery. Of course there are also various other processes supporting the core processes, but for simplicity, we have not included them at this stage. They will be introduced later.

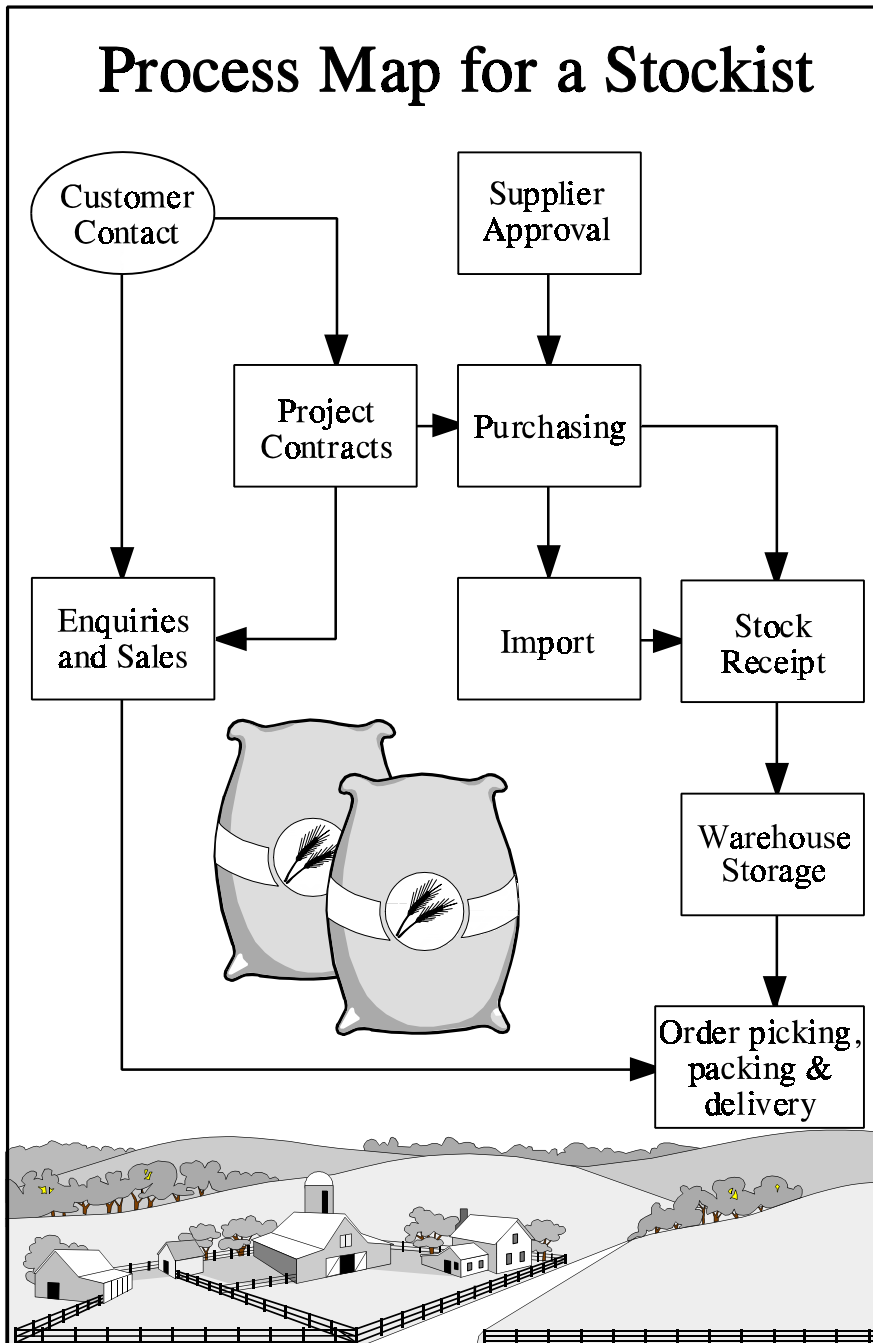
As the organisation's processes operate, they create value by producing the product, and the Customer pays for this according to their own perception of value. This can depend on many factors, including the urgency of the need and the perceived utility of the acquisition. If the cost to the Customer is less than or equal to the perceived value or usefulness of the product, they are generally happy to pay the asking price, and will be satisfied with the product.

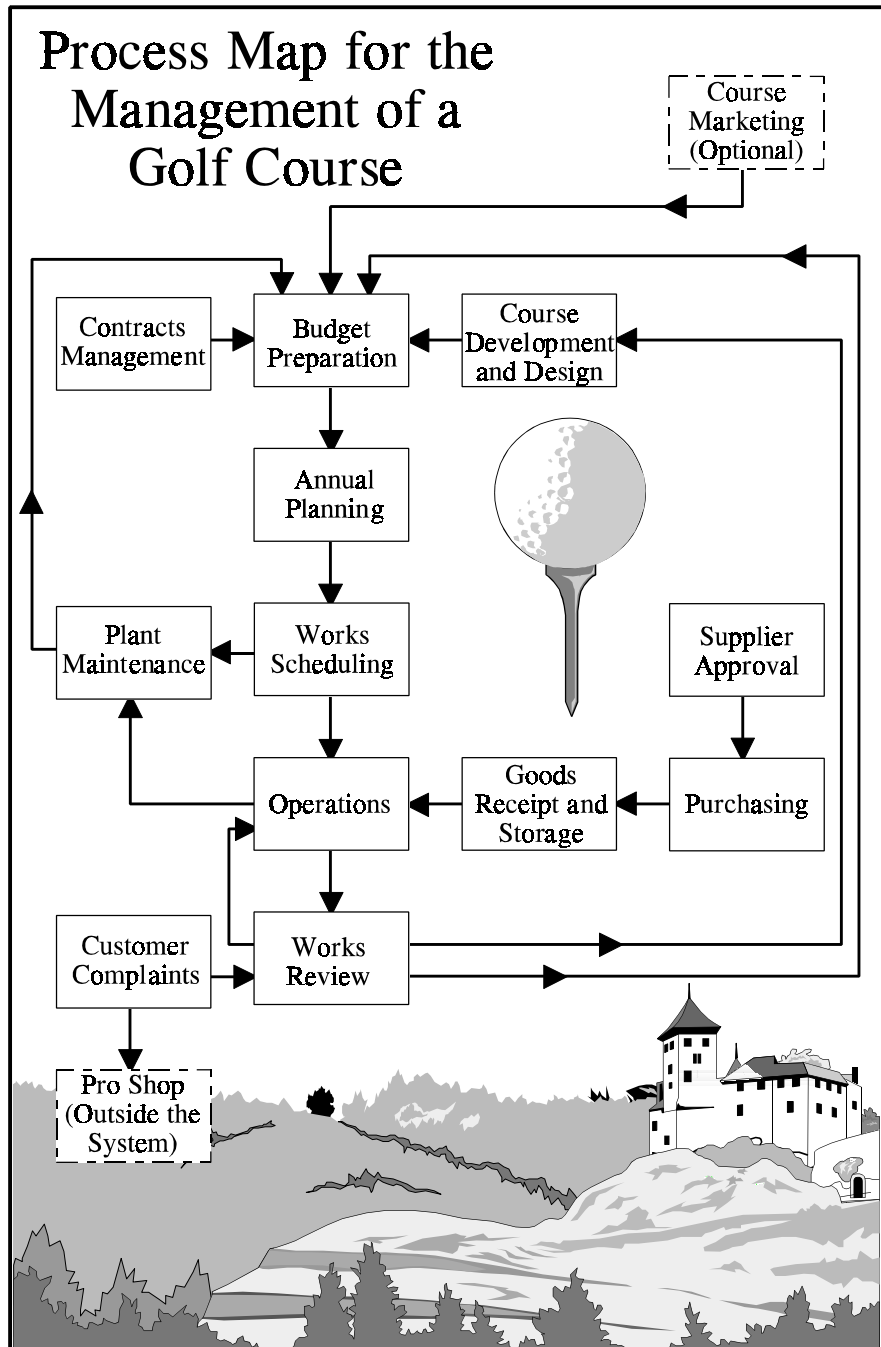
Sometimes the value may be perceived as less than the cost and in such cases the Customer will only buy if they have no other choice. We call these 'grudge purchases'. Examples are bank fees, dental bills, vehicle registration costs and the like, purchases from monopolies and perhaps even quality standards certification!

This framework is called the 'value chain', and it is a well known management concept⁽¹⁾.

The value chain can be developed as a unique, tailored representation of the core value-creation processes for any organisation, so that we can visualise and understand the unique sequence and interaction of processes that exist. The trick is to first see them as linked processes and not as hierarchical structures. Secondly, we need to analyse and identify the processes at quite a high level, so that the core processes don't become obscured by fragmentation, decision boxes and the like. (We can leave that for the procedures and other documentation, which come later.) So, for a stockist organisation involved in importing as well as local purchasing for both stock and project sales, the organisational 'process map' might look like that on the next page.

Sometimes it becomes a bit more complex. For instance, in the case of a public golf course where the 'pro shop' is managed by a different company and there may be no clearly discernible Customer. (Of course there are Customers, but they are anyone who happens to come through the gate - you don't know their exact individual needs and wants beforehand). In this case the process map might look like the one on the following page.



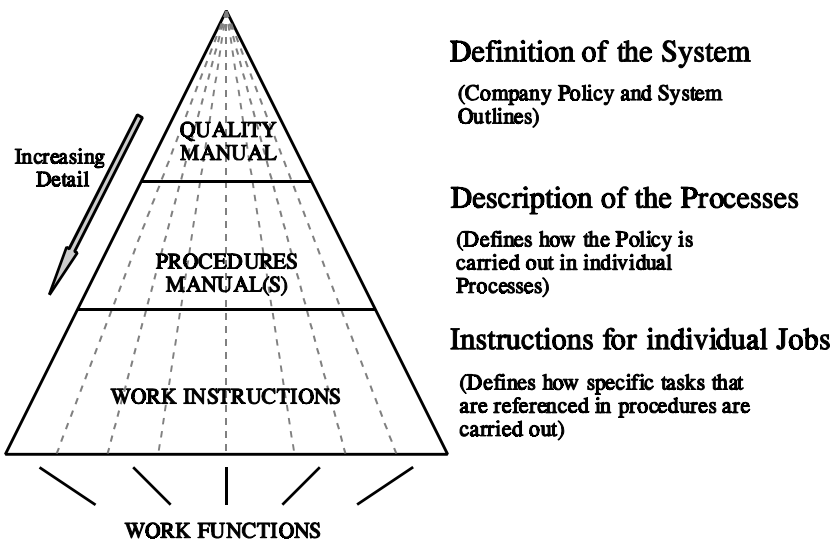


You can see that in each case there are not many processes. Even in large organisations, or strategic business units of large companies, the number of major processes doesn't multiply in proportion to the size of the Company - usually they total no more than about thirty.

Process maps are useful ways to define and visualise the key processes for the creation and delivery of goods and services. There are other supporting processes - for example, ISO 9001 defines processes for document control, training, calibration of inspection equipment and so on. There will also be other supporting processes that link with the key processes, such as the handling of Customer complaints and corrective action.

Overall, the number of processes that are identified will generally be between about a dozen for a very small company, and maybe forty or so for a large company of, say, eight hundred people. The actual number obviously depends on both the size and complexity of the operation, although complexity usually manifests itself in the number of *linkages between* the processes, rather than in the number of processes as such.

Having identified the key processes, the document structure can now be organised. This is normally done at three levels: Quality Manual, Procedures, and Work Instructions as shown in the diagram below:



Some people hold the view that the year 2000 version of ISO 9001 has all but given up on documentation in general, and procedures in particular. They have noticed that there is only a specific requirement for six procedures to

cover the core system management aspects: document control, records, internal audit, nonconformance control, corrective action and preventive action.

However, the question of more or less documentation just isn't a relevant issue. On the contrary, the current version of ISO 9001 simply provides more flexibility in *how* the system is documented, without suggesting that procedures can be dispensed with per se. The expectation throughout the standard is that you will develop a system which has sufficient documentation to consistently achieve Customer-satisfying outcomes. The amount will depend on a combination of the risks involved, the size and complexity of your organisation, the competence of your people, and your personal preferences. The overriding consideration is *balance*. Your quality system must deliver: neither choking the organisation with bureaucracy, nor exposing it to risk through failure to exert effective control.

One clue to the intentions of the designers of ISO 9001 with respect to documentation can be found by comparison of equivalent requirements in the 1994 and 2000 versions. A good example is the requirement for documentation of the internal audit process. The procedure has to cover your audit process at more depth in the 2000 version. The intention is clearly to upgrade the integrity of the audit function. Documentation is closely linked to process integrity, and should be considered in that context.

To achieve an integrated system of documentation, the required structure is quite specific in ISO 9001:

- A quality policy, which defines the framework for the system and its activities;
- Quality objectives, which define the intended performance outcomes for the system;
- A quality manual, which explains the system;
- The six procedures to cover the core system management aspects;
- Other documentation needed for effective operation of the system, and which itself therefore needs effective document control;
- Quality records.

These requirements of ISO 9001 are mostly found in Section 4. It sets the guidelines for the structure of the quality system itself, which is the means by which the management policy is put into effect.

The Quality Manual

At the top level (although not necessarily developed first in the system) is the Quality Manual. This, as we mentioned previously, provides policy and broad descriptive information about your system. After reading the Quality

Manual, people will understand what is covered in the quality system, and what is intended to be achieved through their involvement in it. They will understand the way the processes in the organisation interact. Its size and degree of comprehensiveness can vary, depending on the size of the organisation, the nature of the markets it services, and the extent of externally-introduced compliance requirements that need to be addressed.

If a minimalist approach were taken, the Quality Manual would:

- Describe what areas of the organisation the system covers (Clause 4.2.2a of ISO 9001);
- Describe what aspects of section 7 of ISO 9001 are not considered to apply to the organisation, and why (Clause 1.2 of ISO 9001);
- Describe how the processes of the organisation have been interpreted and linked (Clause 4.2.2c of ISO 9001). This is where your process map is useful - a picture is worth a thousand words;
- Indicate what procedures exist (Clause 4.2.2 of ISO 9001).

All of this can usually be done in just a few pages, and the Quality Manual would serve as an introductory document to the rest of the documentation, and indeed, to the system itself.

But why stop there, when it can be developed further to be really useful?

ISO 9001 also requires that a number of other high-level issues be dealt with. For example, the manual could be extended to cover:

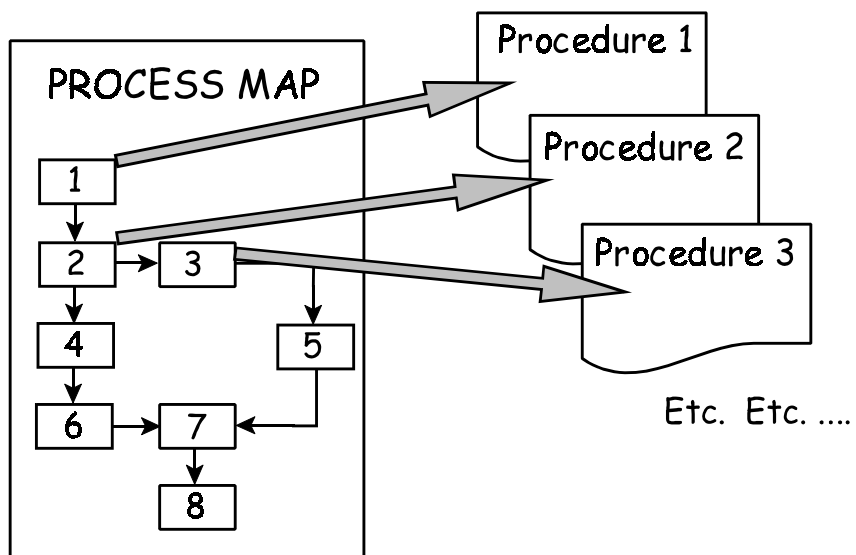
- The statement of quality policy (Clause 4.2.1a & 5.1b of ISO 9001);
- The high-level strategic objectives of the organisation (Clause 4.2.1a & 5.1c of ISO 9001);
- Expressions of commitment by top management to have a vital and improving quality system (Clause 5.1 of ISO 9001);
- Statutory and regulatory requirements that must be met (Clause 5.1a of ISO 9001). This could be extended to include relevant product or process standards;
- The nature of any outsourced services that are integral to the processes of the system and how they are controlled (Clause 4.1 of ISO 9001).

Some organisations need to provide their Quality Manual to potential Customers, and may develop a still more comprehensive document. In such situations, they may go further by taking the ISO 9001 standard and rewriting it into the organisation's own language, to explain what they do by way of addressing each of the requirements. Alternatively, this could be done based on the processes in the organisation. Many Asian organisations take this approach. Whichever technique is chosen, this typically takes another twenty pages or so. However, detail on how work is done, as well as forms and other such documents, are not included at this stage.

Procedures

The heart of the system is the collection of procedures. If you have used a process map to help you work out your organisation's main processes, you'll find it relatively straightforward to write down what happens in those processes, to produce your set of procedures for the core value-creation processes.

A good way to do this is to take each element in the process map and turn it into a single procedure. This is quite straightforward, because each component of the process map defines a process, and a procedure is simply a description of a process. So we can create a one-to-one correlation between the process map and the basic procedures set. The diagram below shows this schematically.



For presentation reasons, we can then sort these into a logical arrangement based on departmental activities or some other sensible grouping. To this list of core value-creation process procedures we now need to add some additional procedures. These can be formed into two groups:

- (1) Those which are needed to support these processes. These could include procedures for such activities as equipment maintenance, calibration of measuring and test equipment, and Customer feedback.
- (2) Those which are needed for system management. These would include the procedures for activities such as document control, control of records, management review, and the like.

You can identify some of these from an insightful examination of ISO 9001, and others from an analysis of the organisation and its activities. The initial process analysis conducted at the stage of developing the process map is obviously very important, and needs to be done carefully, thoughtfully and thoroughly.

When all of this is put together, and the list organised into a format through which people can easily find their way, a full documentation index will have been developed. For example, a small manufacturing company might organise its system with a simple indexing scheme such as shown in the box.

There are other ways of structuring and developing your set of procedures. One alternative approach is to simply list all of the jobs that are done, and then to write a procedure for each. What generally happens in practice is that the list grows steadily as

Document Structure for a small Manufacturing Company

SYSTEM MANAGEMENT

- P01 - Document control
- P02 - Internal quality audit
- P03 - Preventive action
- P04 - Corrective action
- P05 - Management review
- P06 - Control of records
- P07 - Training

SALES

- P11 - Enquiries and sales
- P12 - Customer feedback

PURCHASING

- P21 - Supplier evaluation & approval
- P22 - Purchasing

MANUFACTURING

- P31 - Goods receipt and storage
- P32 - Work scheduling
- P33 - Production
- P34 - Packaging, loading and delivery
- P35 - Control of defective goods
- P36 - Calibration of measuring and test equipment
- P37 - Equipment Maintenance

gap after gap is identified. People in the organisation often become overwhelmed by the volume of it all and it becomes increasingly difficult to come to grips with the system. Sometimes such systems can actually be pushed through certification, which doesn't stop them from becoming increasingly dysfunctional as people simply abandon them.

We have seen such systems from time to time over the years. In one large service company, the system consisted of well over a hundred separate procedures, some as brief as a single paragraph. On top of this, there was no cross-referencing to linked procedures. People found it impossible to negotiate their way through the system and developed an understandable resistance to it. Many simply ignored it.

If you have difficulty picturing such a situation, consider this analogy: You are in an unfamiliar city, the size of Melbourne or Sydney. You have a street directory - unfortunately, the pages have been re-arranged in random order, and the tabs showing adjoining map numbers have been removed. Your job is to travel from a northern to a southern suburb. It is likely that using the street map would be your last choice - it would be much easier to toss it onto the back seat and simply ask someone, and trust their directions, or even to use trial and error, making up your route as you go along.

Back to the example of the service company: by using the process map method, they were able to reduce the total number of procedures by nearly two-thirds, to a manageable forty-five.

Another common approach is to write a procedure for each separate requirement of the standard. One encounters this approach less now than in the early 1990's, when ISO 9001 had a neat twenty elements. This might appear very efficient in principle, and was often the path taken by unskilled consultants or in special schemes promoted for small business. The initial delight in receiving a package of generic draft procedures is often followed by much hard work in redrafting them to reflect the way the organisation intends to address each element. Although apparently simple in principle, it is often quite difficult in practice, as the standards will not be structured the same way as your processes. You will find most of your processes fragmented across many documents.

Surprisingly, some certification body auditors practically insisted on this approach for many years, to the detriment of their clients.

Take, for example, the goods inwards process. There may be up to half a dozen specific requirement sections of ISO 9001 which have relevance to this process. In turn, this means that someone has to read up on all these procedures to find out how this single good inwards process is meant to

*"If it still possible to do productive work,
then the system is insufficiently complex."*

Peter Ramus

work. And that's not all: in each of those procedures, the bits relevant to the goods inwards process will be tangled up with fragments of other processes.

So we come back to our first method. We believe that the most effective way of organising your procedures is to generate them from your process map, because your system needs to 'fit' your organisation. The benefits of this approach are many, and include:

- The documented system will focus on your processes and, after all, managing process variation is what quality is all about;
- Each procedure will tell the full story about the process it describes. This is logical, complete, and easy to understand;
- You can more clearly define your system to your own high process management expectations, rather than simply ensuring that the minimal requirements of the standard are covered;
- Your system will be compact, with less non-value adding content (introductions, notes, repetition, etc);
- Your system will be easier to audit, as there are only a few procedures for each area and they tell the whole story;
- Because you are making the standard the servant of the process, and not the other way around, it is easier to incorporate other standards, requirements and regulations. Accommodating service activities is also much more straightforward. You don't need to struggle with such abstruse concepts as 'inspection and test status of security officers' - something Jeff has seen attempted in one organisation!
- Your system can be expanded to address issues and disciplines beyond the narrow ISO 9001 compliance. The most obvious contender for inclusion is Occupational Health and Safety (OHS) management and Environmental management. Other examples include Good Manufacturing Practice, Asset management, HAZCHEM and Dangerous Goods Control, Trade Practices and other legislation, and industry-specific requirements such as those of the Therapeutic Goods Administration, the Victorian Electrical Safety Management Scheme Regulations, and Meat Inspection.

Incidentally, this is not a new idea. It has been done this way in various organisations since the mid-1970's - before ISO 9000 was even thought of!⁽²⁾

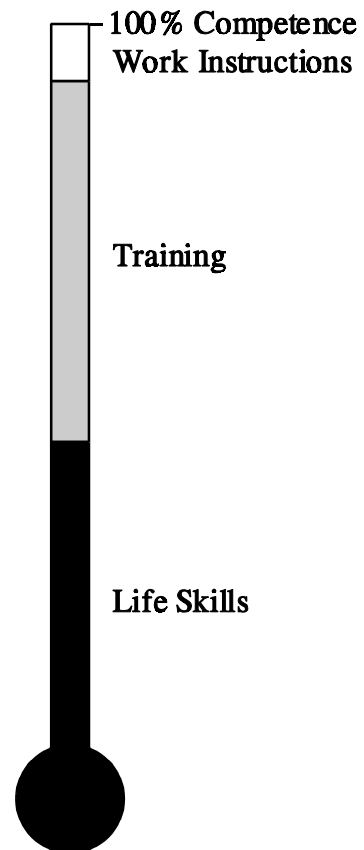
- Best of all, you can draft your procedures yourself, with minimal outside help. After all, you are the expert on your own business process.

Work Instructions

The Quality Manual, defining the overall Quality System, and the Procedures, describing the major processes, are supported at the operating level by work instructions.

Work instructions are tied to procedures and expand on those process steps where detailed descriptions of specific tasks are desirable. An oft-debated issue is how detailed a work instruction needs to be. *"How much detail do I need to document? Do I have to describe how every little step is done, how every form is filled out? What computer keystrokes to use when?"*.

A good way to think about work instructions is as a 'top-up' to training, to ensure jobs are done properly. When people join your organisation, your selection criteria would have included their life skills, prior learning and potential for development. You then expend resources to train them to the level appropriate for the particular job. Beyond this, work instructions fill the remaining 'competence gap', complementing life skills and training by acting as reminders or references to issues that are important enough to need emphasising.



Consequently, not every task in every process needs to be documented as a work instruction - this is unnecessary and impractical. In fact, Jeff once worked with a small stockist company where they were able to incorporate the few tasks that needed expansion into the procedures themselves. This resulted in a very simple documents structure.

Literal Fellow

An acquaintance of ours recently attended a beginners' computer course. All students were busily tapping away, with one exception: one hapless student sat staring at his keyboard without moving a finger. When asked what the problem was, he said he couldn't find the 'ANY' key!

Well, after all, he was only trying to execute the work instruction: "Press any key to continue".

(Incidentally, we've since heard this 'absolutely true' story from several totally unrelated sources).

On the other hand, work instructions can be essential in quality-critical or safety-critical jobs where people need to follow them literally. Examples include laboratory test procedures, and the check lists used by aircraft pilots. Or the Chernobyl nuclear plant shut-down procedure.

We observed a good example of the use of work instructions in a printing company in Adelaide. They entered a heavy work-load phase and brought in casual labour to assist. They were

unable (or chose not) to do much training and, as a result, many mistakes were made. To correct this, work instructions were written for jobs to which casuals were assigned, so they would know what to do. This proved to be an effective solution.

Finally, a simple example to illustrate the difference between a procedure and a work instruction:

A procedure describing the Goods Inwards process might explain how goods are delivered, receipted, unpacked, verified and put into stock. It might go on to describe the distribution of paperwork and updating of information.

A work instruction would be appropriate to list the actual individual checks that are carried out with each delivery.

Some Further Considerations

1. You need as much documentation as you need

There is clearly an expectation throughout the ISO 9001 standard that there will be appropriate documentation, often substantial. It has to consist of policy, objectives, the quality manual and procedures, records, and all sorts of other documents that may be required for the effective functioning of the system.

The Tatts Test

In deciding how comprehensive your documentation should be, we recommend the 'Tattsлото Test':

If any staff member won Tattsлото and left on the spot, would you be able to carry on your business?

However, you can suit yourself as to the form, medium, and extent of documentation. So what criteria should you use to decide?

Well, broadly, documentation has three fundamental purposes:

Firstly, by a mysterious means, when you document a process and build understanding of it based on that document, you tend to be able to exercise better control of that process. So, by considering the complexity of the work you do, the risks involved, the size of the organisation, and the skills and training of the people involved, you can arrive at a depth of documentation that is 'right' for you.

Secondly, documentation can serve to preserve organisational memory and knowledge. The implications of loss of organisational knowledge may not be immediately visible. However, one of the significant findings of the Royal Commission into the Longford gas plant explosion was that a key procedure relating to plant management had become uncontrolled, resulting in a failure of people to act in an appropriate way in the circumstance, and contributing to the disaster. On the other hand, Jeff has seen how a large telecommunications company preserves organisational knowledge of its many databases, (and who maintains them) via the extensive use of notes and hyperlinks in their electronically-documented system.

Thirdly, documentation can serve as a support or reinforcement to training. An example of this approach was found in a metal refining plant which Jeff was privileged to work with. The technology was new, and evolving. Rather than just do the minimum to achieve basic control, and certification, the management and all staff held the consistent view that all key aspects of the process operation needed to be documented. Otherwise, where would people go to find out? How else would flexibility be developed across the workforce? How could skills be verified objectively and fairly? Significantly, this plant passed certification without any adverse findings, major or minor.

2. You can break the structural rules

The approach we have explained so far can be described as a ‘classical’ approach. It has been proven, and tends to work well for most organisations. Although ISO 9001 clearly projects an expectation that you will establish a sound base of documentation, it is also somewhat flexible on the matter of how you do this. The standard does mandate that certain procedures must exist in documented form:

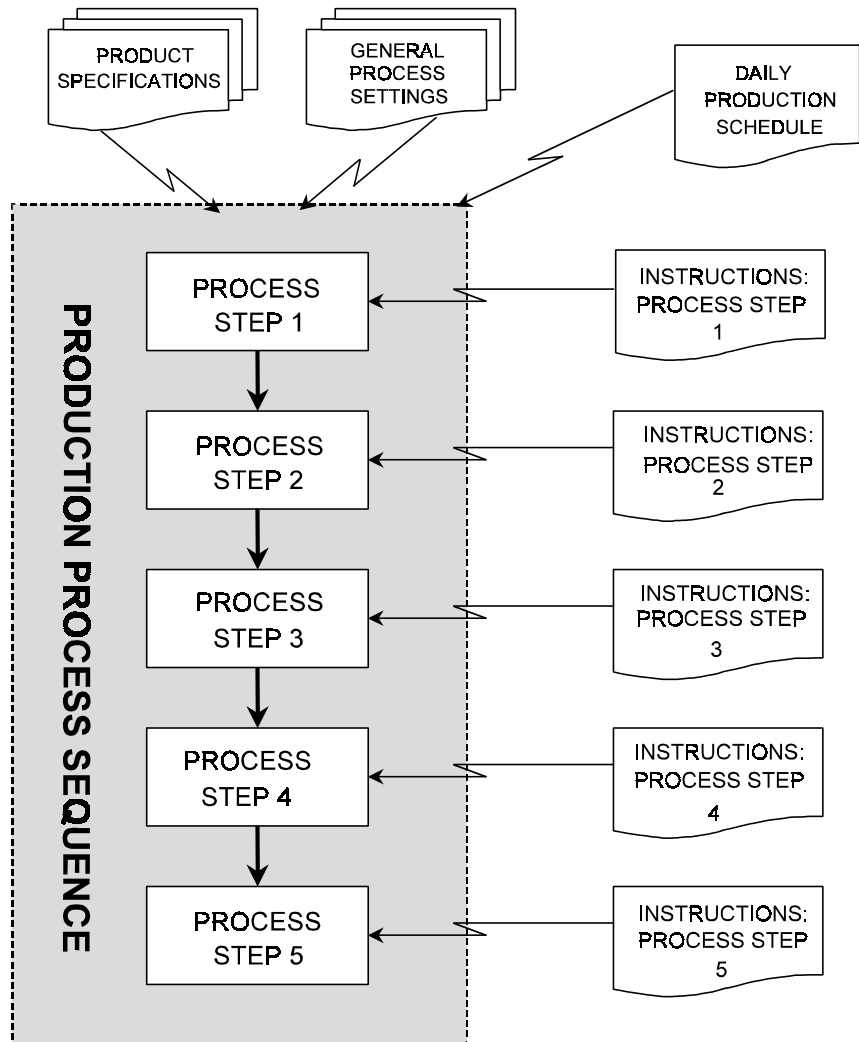
- Control of documents;
- Control of records;
- Internal audit;
- Control of nonconforming product;
- Corrective action;
- Preventive action.

As for the other processes, you can document them in any way that works for your organisation. An interesting example from a carpet manufacturer is shown, in somewhat simplified form, on the next page.

The identified key inputs to the processes in this plant form the basis of documentation for each process:

- Product specifications, so that people know the characteristics of the product to be produced, and the acceptable degree of variation for various attributes that matter to Customers;
- Daily production schedules, so that people know what kinds of products to produce;
- General process settings, so that people know how to set the equipment up to produce good product with acceptable variation;
- Work information (i.e. work instructions), so that people know how to operate each stage of the process, to control process risks, and manage key drivers of variation.

All of this was designed to reflect both process and operator needs, and works to control the process effectively, preserve key information, and serve as a training resource in the organisation.



Reproduced by courtesy of Mr Mark Appleford,
Godfrey Hirst (Australia) Pty Ltd

Chapter 12 - Key Points

- The essence of the quality system is to describe how the organisation's major processes are carried out;
- Key processes are Sales, Design/Development, Purchasing, the actual Product-creation processes, Delivery, and Post-sales servicing;

- A good place to start is a process map - a schematic diagram of the key value-creation processes and their interconnections;
- The document structure is often done at three levels: Quality Manual, Procedures, and Work Instructions;
- The Quality Manual is not necessarily written first, nor does it need to be a weighty tome. The emphasis is on what is done, rather than how it is done;
- Procedures derive conveniently from the process map;
- When designing the document structure, it is vital to keep in mind that the system is supposed to serve the organisation, not the other way around - there are many advantages to addressing the standard from the way you operate, rather than squeezing your document structure into the format of the standard;
- Work instructions are not always necessary - they can be thought of as augmenting training, to create 100% competence;
- Use common sense throughout. You only need as much documentation as you need. It has been said that *"Rules are for the obedience of fools and for the guidance of wise people"*.

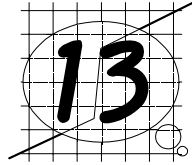


1. *'Competitive Advantage'*
by M.E. Porter, Free Press, N.Y., 1985, pp4-8 & 234-236
2. *'SQP Ergonomics: the Role of Ergonomics in integrating Safety, Quality and Productivity'*, by K R Harrigan
Proceedings of the International Mechanical Engineering Congress, Sydney, 8-12 July 1991.

The other Side of the Coin!

"I constructed elaborate flow charts of what I needed to do, when what I really needed to do was to do something."

Clive James



The Three Pillars: Risk, Compliance and Integration

*“Those who are good at getting rid of trouble
are those who take care of it before it arises.”*

From Sun Tzu’s “The Art of War”

Every organisation with which we work asserts that they are highly Customer focussed. They develop quality management systems which are intended to support this goal, to the best of their ability and in the context of their industry type, knowledge and resources. They may embrace the kind of objectives focus that we described in Chapter 8. Yet often they have the feeling that something is still to be done. That the system can be ‘tighter’, more relevant to the organisation, and embraced by its people with more enthusiasm and commitment.

We have identified *risk*, *compliance* and *integration* as emerging themes. Over the coming years, we believe that quality management systems will be designed increasingly to address these three issues. They will be leveraged to deliver outcomes that go far beyond a generic process control approach, or mere procedural compliance for the sake of certification.

RISK will be an essential consideration in order to focus system resources and protect the organisation and all its stakeholders.

COMPLIANCE programs will ensure that all external requirements placed upon the organisation are systematically and proactively managed.

INTEGRATION strategies will ensure that the disparate systems that exist to address the various stakeholder needs are synergistically co-ordinated.

Risk

As we write this, there has just been a serious aircraft crash, with major loss of life. Early reports point to a combination of three contributing factors:

- The runway was fogged;
- The warning radar was down for regular maintenance;
- Human error caused a light plane to stray into the take-off path of a large passenger aircraft.

Each of these was of itself not a significant issue under ideal conditions. Yet combined at a point in time they produced a catastrophe. Similarly, each of the disastrous events listed at the start of the Introduction to this book could be traced to a similar coalescence in time of seemingly innocent or trivial factors: a document not up to date here, a procedural shortcut there. In each case, there was a major impact upon the objectives of the organisation, and ‘interested parties’. This is the consequence of inadequately controlled risk.

AS 4360 and **HB 142** define risk as follows:⁽¹⁾

“The chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood.”

We constantly deal with risk in our daily lives and we continually process the three elements of risk:

- Our perception that something could happen;
- The likelihood that it might happen;
- The likely consequences if it does happen.

Sometimes we take a risk which may have a neutral to highly-positive potential consequence - for example the purchase of a lottery ticket. Other times people may see the consequences as potentially negative, but not so significant that the risk is not ‘worth it’ - exceeding the speed limit by just a bit, say. Sometimes it goes wrong, and what was seen as a worst case scenario of a speeding ticket and a few demerit points might become a culpable driving charge. Of course, the greatest risks exist when we fail to assess the risks at all!

Risk is a complex matter. It cannot be managed without some kind of system. This has been recognised for many years in the area of occupational safety, where legal precedent mandates the requirement for employers to establish as far as possible a safe system of work. A risk management process such as the following enables us to achieve this, not only for safety, but also for quality.

Establish the Context

The first step in the process is to consider the level of risk that the organisation is willing to accept. This will be different for an airline to what it would be for a wholesale distributor, for example. It reflects different markets, legal issues, financial aspects, etc. The stakeholders who might be affected are identified at this stage.

Identify Risks

This should be done as a structured, systematic process so that all aspects of risk under a range of conditions are identified. Obviously any risks that go unidentified could pose a major threat at some future time. There is a variety of possible techniques that can be used at this stage.

Risk Analysis

The purpose here is to work out the level of each risk in the context of the existing control regime. Two dimensions of this are the likelihood of the risk event occurring, and the severity of the result. Some methodologies allocate numbered rankings to these to form a matrix, and allocate each risk to a level of expected likelihood and severity. These can then be multiplied together as a means of estimating the level of risk in more quantitative terms. This helps to prioritise the risks for control action at the next step.

Risk Evaluation

At this phase, a judgement is made on the acceptability of the risk. If it is considered acceptable, it means that no further action will be taken to mitigate its effects, even though they may be significant. Risks may be accepted because they are considered too low for available resources to address, or there may be no treatment available, or the cost of treatment outweighs the benefit, or the opportunity justifies the risk.

“Navigating the risks confronting your business and negotiating acceptable levels of risk with your stakeholders are twin challenges for leaders everywhere.”

Kerrie Mullins-Gunst

Risk Treatment

This involves reviewing the range of options to handle risk, and preparing and implementing risk treatment plans. There are a number of treatment options which can be applied. We can:

- Reduce the likelihood. Generally, the preventive action elements of our quality management system have this effect.
- Reduce the consequences. Typically this is the focus of inspection and control activities.
- Transfer the risk to other parties who are better equipped to handle it. Asbestos removal is an example of this category.
- Avoid the risk altogether, by choosing not to proceed with the activity, or employing an alternative work practice.

Note at this point that these principles of risk management are, in fact, incorporated in the various approaches taken by management system standards.

- **ISO 14001** for environmental management asks us to first identify all of the potential environmental possibilities ('aspects'), and then determine the real or potential 'impacts' of these upon the environment. These are then analysed to identify the most significant impacts. Plans are put in place to control these and continually improve them in the framework of specific objectives and targets.
- **AS4801** for occupational health and safety (OHS) management takes a similar approach. Firstly, hazards are identified and then the classic risk management approach described above is applied. Within the OHS framework a well-established hierarchy of controls is used. This starts with elimination of the risk altogether, then substitution with something less hazardous, followed by engineering control, administrative or procedural controls, and finally the use of personal protective equipment.
- **ISO 9001** is not often considered in the context of risk, but rather as a collection of requirements that have to be followed. However, it can be considered as a compendium of the likely risks that exist within the value-adding chain, that have been compiled over the past 50 years or so. For example, in this perspective, document control takes on new meaning. It represents the control mechanism to ensure that people don't take wrong actions because they are not in possession of reliable data or information. The risks are listed as items (a) to (g) of ISO 9001 Section 4.2.3:

- The risk that documents may not be correct when issued;
- The risk that documents won't be kept up to date;
- The risk of not recognising changes to documents when they occur;
- The risk that people won't have access to documents they need to do their work;
- The risk that documents will become unusable after prolonged usage in the workplace;
- The risk that external requirements (such as statutory or regulatory requirements) won't be identified and their requirements integrated into the work activities;
- The risk of using out-of-date documents.

Document control processes deal with this. Often this is done using procedural controls. An intranet approach provides even better control by eliminating some of these risks altogether.

Recipes for Disaster

"Risk assessment associated with management of change was not contained as a procedure within OIMS Element 2."

"No HAZOP study had been done on the plant."

Relocation of all plant engineers to Melbourne in 1991, reduced "opportunities for informal exchanges between the two groups (i.e. engineers and operators), which are often the means of transfer of vital information". The relocation should have been subject to a risk assessment, which was not done. Changes to increase operator responsibilities during the 1990s, and reduction of operator and maintenance staff was not subject to risk assessment.

Longford Royal Commission Report, Chapter 13

Quality technology has developed a number of methodologies which help us deal with risks in our products and processes in a structured way. Two of the better-known are:

- Failure Mode and Effects Analysis (FMEA) for both processes and products is designed to assess both the likelihood and consequence of risk, and quantify the chances that its effects will be detected. It is mandatory for first tier automotive parts suppliers within the context of the QS-9000 standard.

- Hazard Analysis Critical Control Point system (HACCP) is a methodology developed originally for the NASA space program. It is used within the food industry supply chain, literally from paddock to plate, to identify the most critical health hazards in food production processes, and then identify and establish measures for applying controls to prevent, eliminate or reduce them to acceptable levels.

A risk approach to all our management systems, including those that deal with quality, provides a focus of effectiveness and helps us channel our resources more wisely to those areas where the benefit will be greatest. It also helps us to develop systems which are continually improved and streamlined towards specific tasks and objectives.

Compliance

A special area of risk that organisations face is their compliance with corporate legal obligations. **AS 3806** and **SAA HB133** were initially developed in response to a request by the Australian Competition and Consumer Commission (ACCC) for a standard to assess an organisation's compliance to the Trade Practices Act.⁽²⁾ Since then, the Australian Securities and Investment Commission has adopted AS 3806 as the benchmark for compliance plans, and the Privacy Commissioner has also taken interest in its use.

Beyond these specific areas, there is a plethora of other compliance requirements that organisations have to deal with. These can relate to:

- Environmental legislation, licences and regulations;
- OHS legislation and codes of practice;
- Statutory and regulatory requirements within the ISO 9001 quality system framework. We can extend this to Customer requirements and referenced standards and codes.

"We all have stuff-ups. It's how you deal with them that counts."

John Bluthal's character in "Time and Tide"

AS 3806 and **SAA HB133** define compliance as:

“Ensuring that the requirements of laws, regulations, codes and organisational standards are met.”

Legal compliance is a special subset of this. It is also called ‘due diligence’, and is concerned with the control of legal risks to ensure that the law is complied with.

An effective compliance management system has many of the core features of the other management systems in organisations (quality, safety, environment). Not surprising really, as compliance needs to be melded into the processes and practices of the organisation in an effective and sustainable way if it is to be really effective. The way to do this consists of a straightforward series of steps, as follows:.

- 1) The relevant compliance documents need to be identified. In our experience, most organisations have a reasonable knowledge of those that apply.
- 2) The specific requirements within these documents, and those they reference, need to be listed and understood in terms of both their specific requirements and their intent.
- 3) Identify where in the processes these requirements apply. Remember that the point of application may be ‘upstream’ from the place where the compliance effect is to be seen.
- 4) Build into the processes and documentation the necessary actions to ensure compliance is part of the normal work processes. Remember to note the compliance element in the documentation (in specific terms, with appropriate referencing so that the knowledge is preserved) and in the quality manual (so that the broad compliance issues are recorded).
- 5) Systematise the compliance program. Many of the features of the quality management system are relevant here, although some adjustment of emphasis may be appropriate. Some of these features are:
 - *Processes to identify compliance issues* are needed. Our document control system can be deployed to achieve this, and it will ensure that the requirements are recognised proactively when they change.

- *Operating procedures* for compliance are needed to ensure that compliance is a part of normal operations. The requirements that are identified should be integrated into the procedures and processes as part of the regular work processes, not as an add-on.
- *Implementation* needs to be effective. This should include the normal quality system aspects of review, reporting, audit, training and records management. Adequate resources are needed for compliance programs to be effective, and these need to be both efficiently applied and protected when budgetary constraints are needed in the organisation.
- *Monitoring, assessment and audit* of compliance programs is needed to ensure they are effective and sustainable. This is also an aspect of management control.
- *Corrective action* needs to be built into the system as a proactive element. It should include a sound approach to complaints handling, and the standard AS 4269 ('Complaints Handling') provides guidance for this.
- *A culture of compliance* is needed. It is more than just following rules. Just as we seek to create a quality culture, environmental awareness and safe behaviours, compliance requires an ethical approach. To do this both the rules and the principles and the ethical values that underlie them need to be consistently understood and applied through the organisation. Policy deployment and proper leadership are essential here. This can be demonstrated, at least in part, by giving compliance matters high visibility in the organisation and communicating them appropriately.

Integration

AS 4581⁽³⁾ defines an integrated management system as:

“A combination of the processes, procedures and practices used within an organisation to implement the organisation’s policies and which may be more efficient in delivering the objectives arising from these policies than multiple systems”

The trend to system integration is occurring for a number of reasons, and essentially because of the development of safety and environmental systems alongside quality management systems. The drivers of this are:

- There is a perceived efficiency benefit in having only one system framework that addresses a number of issues, rather than maintaining several management systems each addressing a single issue.
- The management of business processes that deal with quality, safety, and the environment, and also incorporate risk and compliance considerations, is a complex affair. It therefore requires as simple a system as possible, so people can understand what they need to do.
- Just as attempting to construct a management system to the architecture of a standard results in process fragmentation, processes can become fragmented in the way they are described if they are separated along stakeholder lines, as occurs with unintegrated systems.
- The desire by managers to demonstrate effective due diligence.
- Risk exposure can occur at points when control is transferred from one system to another and this requires better linkages to ensure smooth 'handover'. For example, when maintenance in a quality management system requires an equipment isolation in a safety management system.

This trend is not lost on the standards writers, and ISO 9001 and ISO 14001 have been constructed so that they have as much compatibility as possible to facilitate integration. Consequently, the most common approach has been to develop a single management system which addresses quality (i.e. Customer) outcomes as well as environment (i.e. community) effects arising from the processes in the value-adding chain. An example to illustrate the way that the quality and environmental systems can blend concerns a sewage water treatment plant. Are they seeking to produce clean water for discharge, or to purify the effluent so that there is no environmental impact? It all depends which way you look at it (hopefully from an upwind vantage point!).

Jigsaw Puzzle

System integration can combine a variety of standards, including Customer standards. In a recent project in the automotive industry, the following integration was required:

- Environment: ISO 14001
- Safety: AS 4801
- Quality: ISO 9001, QS-9000, ISO/TS16949, MS-9000, Ford Q1

The next logical step is to include safety (i.e. employee impacts) within these processes, particularly as environmental and safety considerations can be highly intertwined. After all, an environmental mishap is really a safety mishap that has escaped the organisation's boundaries, as in the nuclear incident mentioned in the Introduction.

However, integration should be considered at a number of levels, and not just in the context of the three technical disciplines.

Level 1: Technical Integration

Technical Integration of the management systems with the work processes is a basic and obvious level, and we describe this process of implementation more in the following three chapters.

Level 2: Horizontal integration

This often follows, particularly as organisations seek to embrace the larger visions of ISO 9004 (which we covered in Chapter 11) and Business Excellence frameworks (which we address in Chapter 20). Horizontal integration seeks to expand the value-adding process systems to extend into finance, marketing, human resources and so on until a company-wide management system is achieved.⁽⁴⁾ It is interesting to note that organisations which do this tend to call it just that: *The Management System*. Appendix A of AS 4360 lists the broad extent to which horizontal integration can be considered:

- Legislative compliance
- Occupational health and safety
- Financial and accounting processes
- Information systems
- Resource management
- Product quality
- Asset management and resource planning
- Environmental management
- Disaster and emergency planning

Level 3: Organisational integration.

At this higher level, the management systems should integrate with the organisation's strategic intent and objectives, so that they truly fulfil their purpose in alignment with the overall business. Again, from this perspective, the ISO 9004 and Business Excellence frameworks provide good models.

Finally, having explored *what* we seek from systems integration, and *why*, we should discuss *how* to approach it.

"If Quality systems are not integrated with the organisation's strategic objectives, few, if any, benefits will accrue."

From our Introduction

From a perspective of *Management of the Organisation*, integration is the most straightforward. We simply need to develop a broader management vision from a policy and objectives perspective. Our monitoring, improvement and review processes should also expand in the same way to embrace the larger stakeholder focus. Training processes are easily expanded to incorporate multiple disciplines.

There are considerable benefits to be obtained from integration within *Management of the System*, and it is also quite easy to do. The processes for managing documents and records can readily be expanded to cover the additional material with which integration presents us, often with no additional overhead costs. Audits can be planned in an integrated manner, either by multiskilling 'specialist' internal auditors, or assembling audit teams that are multidisciplinary in nature. The corrective action process can also be enlarged to address the broader perspective of integration. Many organisations have found considerable benefit by unlinking this process from quality alone, making a fresh start, and leaving behind some of the 'baggage' that accrued from an immature approach to the quality paradigm.

Integration within the processes concerned with *Management of Product* present the greatest challenge. To accomplish this, it is essential that the systems to be integrated are process-based, and designed in the way we described in the previous chapter. In fact, it is interesting that the process-based systems Jeff designed for organisations in the early 1990s with a knowledge that at some time in the future they would need to have integration compatibility, have, in a sense lain dormant until recent times. They are now being integrated smoothly.

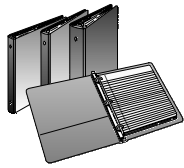
Once the core value-adding processes have been identified, each is reviewed in the context of the individual system requirements that are to be integrated to meet the needs of 'interested parties'. The process documentation (usually in the form of procedures) is then expanded to 'tell the story' in a complete way. There are often some extra lower level instructional documents which may have a specific focus. These will be easier for people to navigate in the system, as the linkages down to them are more focussed, and they are captured in a targeted job-specific parcel.

Note that not all processes will have all of the disciplines embedded into them. It will vary. There will still be some that are 'stand alone'. For purposes of ongoing maintenance, it will be important to note what requirements apply to which documents - we'll explain the way to do this in the next few chapters.

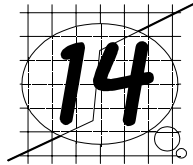
If you follow the suggestions outlined in this chapter, you will achieve a system that really is supported by the three pillars of RISK, COMPLIANCE and INTEGRATION, and which will deliver lasting benefits to your organisation well into the future.

Chapter 13 - Key Points

- Risk, Compliance and Integration have been identified as three emerging key issues in making management systems more effective and efficient;
- The three aspects of risk are the fact that something could happen, the probability that it might happen, and the consequences if it does;
- Standards for Environmental Management and OH&S deal explicitly with risk;
- Although ISO 9001 is not often considered in this context, it contains many embedded references to risk;
- Any organisation faces a wide range of compliance issues that need to be managed but often aren't;
- There are significant advantages to building integrated business systems that embrace all of quality, environment and OH&S;
- Integration operates at three levels: Technical, Horizontal and Organisational;
- Integration is relatively straightforward in the contexts of Management of the Organisation and Management of the System. It provides the greatest challenge within the processes concerned with Management of Product.



1. The standard '*AS 4360 Risk Management*' and the handbook '*SAA HB142 A Basic Introduction to Managing Risk*' are available from Standards Australia at **www.standards.com.au**. We have referred extensively to these publications in this chapter.
2. The standard '*AS 3806 Compliance Programs*' and the handbook '*SAA HB133 A Guide to AS 3806-1998 Compliance Programs*' are available from Standards Australia as well and have also been referenced extensively in this chapter.
3. The standard '*AS 4581 Management System Integration – Guidance to Business, Government and Community Organisations*' is also available from Standards Australia.
4. '*Integrated management systems: an examination of the concept and theory*'
by G Wilkinson and B G Dale
The TQM Magazine, Vol. 11, No. 2 (1999), pp.95-104.



Documenting the Quality Management System

“Less is more”

Robert Browning

When the required documents have been identified, the question arises of who will write them. There is a common ‘wisdom’ that people ought to document their own processes, because they are the experts in those activities, and they will therefore have a greater sense of ownership. This approach has been promoted by some certification companies in the past, seemingly without the backing of much logical or practical argument.

In principle, it does make some sense, of course: The people most able to describe a process are those working in that process. However, there are some practical difficulties with this approach. Here are some of them:

- In many organisations, there are few processes in which the same, single person works from beginning to end;
- Those working in the process may not be very skilled at describing it clearly and concisely;
- Unless there is strong and skilful leadership, motivation can be a problem;
- The people involved may not have the necessary time;
- The standard of output can vary considerably (although training in procedure preparation can help).

There are alternative ways to approach the documentation process. As always, their success depends on how well they are managed.

One approach is to use an outside specialist. If a person of ability and experience is employed, a consistently high standard can be

achieved. Such a person will require a few days' familiarisation time in the organisation as well as several hours for each process. Potential problems with handover of ownership can be avoided by ensuring there is engagement and communication with people who work in the process. On the face of it, this may appear to be an expensive option. However, experience shows that the cost can be as little as 20% of the true cost of an inexperienced learner doing the job internally. It can be a good option for an organisation with limited internal resources.

Passing the buck

A problem Jeff encountered in some organisations was that of excessive 'delegation'. More accurately, managers passing responsibilities down the line, in the mistaken belief that they were delegating. Their role modelling was copied faithfully all the way down the chain of command, until the task stopped at the bottom rung, with people who had few of the necessary skills and were not getting any support.

Another alternative is to use an internal specialist. Such a person will probably (although not necessarily) have a good knowledge of the organisation and its processes, and is therefore able to produce output of a consistent standard. If this person has limited managerial influence or limited experience with quality systems, he or she will tend to take longer than an outside specialist. Management of handover may be more difficult, because if a person within the organisation develops the documents, they can be seen as the 'owner' of the result. Encouraging others to take ownership can then become a problem.

A process which combines the best of all approaches is to give selected individuals in the organisation the job of documenting one or more of the processes they work in, with assistance from an inside or outside specialist. This can work very well, provided (need we say it again!) it is managed properly.

Regardless of the approach, it is essential to identify the logical 'process owners', as ISO 9000 recommends, whose role it is to review the documents to ensure they are prepared and correct, and ultimately properly implemented.

There is one other snag with all of this. It is embodied in the following ‘law’:

Kruihof's Process Procedure Perversity Principle

At any given time, there are at least three versions of how a process works:

- * The way any existing documentation says it works*
- * The way management thinks it works*
- * The way it actually works, warts and all*

It means that for every process being documented, a management decision has to be made as to what the authoritative version is, because it is the essence of a Quality System that processes work the way the documents say they do. The role of management in the development of management systems is critical.

(By the way, to the above list you could add ‘The way we would like the process to work’, but that’s another story).

The Right Stuff

More from Jeff's Case Book:

“I recall one large Company which formed a very successful documentation team.

One member was an experienced production engineer, who had an excellent understanding of the processes and could therefore ensure the processes were properly covered.

Another member was a trainee teacher on vacation employment who acted as the interviewer. The third member of the team was a young graduate journalist who drafted the procedure.

They interviewed their colleagues and produced the necessary documentation for handover. An outside specialist was retained to provide ad-hoc guidance. A great result was achieved!”

A Step-by-Step Guide to Document Preparation

The following is a logical sequence of steps which usually leads to a good result. Although there is no specific mention of the PPP Principle, don't forget it is there! A less troublesome, and very useful principle to also keep in mind is 'KISS': Keep It Short and Simple.

1. Decide on a standard layout and structure for your documents (see the suggestion in the text box.). It can be useful to prepare a short guide to their preparation, to explain how they should look and be structured. In general, documents should be as short as possible, without becoming so short they are no longer useful. We have seen documents containing only four lines of instruction, submerged within a five-page tangle of bureaucracy. On the other hand, we have encountered documents extending to 15-20 pages of close packed 10-point text. Both extremes are poor practice.

User surveys indicate that a point size of 12-13 and 1.5 line spacing are best for clarity. Clear headings with plenty of space helps people find their way through the text easily. Remember that if the document is meant to be read from a computer screen, the reading rate will be about 60% of the hard copy reading rate, so even more clarity is needed. In

A suggested Document Structure

Although there are a number of ways to structure documents, one that is 'tried and true' is the following:

1. Purpose

Describe the intended outcome of the process (i.e. process intent), and how this document is meant to facilitate that.

2. Scope

Explain what the document does, and doesn't, cover. What are the boundaries of the process described in the document?

3. References

List here all external documents, such as ISO 9001, codes, regulations, standards etc. that must be incorporated into this process. This becomes a useful record for future updates, and for audits. It can also be helpful to indicate specific clauses when appropriate.

4. Process description

Once the introductory framework has been included, describe the process to the extent appropriate.

5. Documents

It can be helpful to list any other documents that are referred to within the document being drafted. Of course, hyperlinking in electronic documents makes this largely unnecessary.

this situation, many people find that a round font such as Arial is clearer than the conventional Times New Roman. It can also be clearer to break the document into smaller, screen-sized 'parcels' which are connected by hyperlinks.

*"I keep six honest serving men
(They taught me all I know);
Their names are What and Why and When
And How and Where and Who."*

Rudyard Kipling in "The Elephant's Child"

2. Work out how the process currently works, and record the purpose (the process intent) and scope of the documentation. Any obvious process problems that can be fixed without great expenditure of time or money would usually be attended to at this time.

Process flowcharting can be a useful tool for this, and some people incorporate them into their procedures to make them clearer. Care should be taken if flowcharts alone are to be used to document processes, as the final result may overlook the accountabilities of people in the process. One format we have seen used effectively has flow-charts on the left-hand pages with explanatory notes on the right-hand side.

3. For each step in the process, describe what is done and by whom (this also addresses the issues of authority and definition of responsibility); where, when and how it is done, and, if appropriate, why it is done that way. Indicate what equipment and facilities are used, cross-reference or hyperlink any relevant documentation (such as forms, other procedures, reference information etc.) and describe how the process is controlled.
4. Review the current practice to be sure that all of the requirements of ISO 9001 and any regulatory or other requirements are covered. Also, identify whether current methods are effective in ensuring that Customers' requirements are achieved, or could be improved upon, and that Customer needs are addressed (it might be a good idea to talk to them about it!).
5. Determine the need for any lower level instructions to complement training and to explain how individual tasks covered within the higher level documents are carried out.
6. Prepare the documents in the agreed format. Get someone suitable to look through the documents to ensure that they have a logical flow, that there are no omissions and they explain clearly how the process works.

Improve readability by the usual techniques, such as writing short sentences in the active tense. This can also shorten the overall document length. Use the language people writing and reading these documents would use in normal conversation. There is no need for “shall’s”, “is to be done’s” and other textual clutter. Many word-processing applications, such as MS Word let you check your text for readability and use of passive sentences.

Always keep the Customers of your documents in mind.

7. Review the documents with the people who will use them. Address their concerns and then have the documents approved and issued. You don’t need to issue all documents to everyone - issue them selectively to people who need to use them.

Some people find it helpful to set up a matrix which allows each step to be signed off as each document is developed. That way, you can ensure that the consultative aspects are built into the development process.

We emphasise again that, particularly in the case of work instructions, it is not necessary to document everything. You need to balance the amount of documentation you create with the knowledge and skill of those doing the job.

If, for example, you often use casual employees, it makes sense to have more work instructions than if you have skilled permanent staff. In some cases you may have to have work instructions to comply with legal requirements.⁽¹⁾

Crunch Question

During the audit process Jeff sometimes asks his client “What did you change to implement ISO 9001?”.

The more quality-oriented the organisation, the more likely the answer is along the lines of “Practically nothing - we just wrote down what we actually did”.

One more piece of advice: Write the documents for your own use and benefit, not with your mind on the auditor’s requirements. After all, the latter are only on site for a couple of days each year and if they are at all competent and Customer-focussed, they will be pleased to fit in with your approach. If not, remind them who their client actually is, or find an auditor who is prepared to add value to your organisation.

Chapter 14 - Key Points

- Procedures are best prepared by skilled internal or external specialists with input and co-operation from people in the process;
- Before a process is documented, the 'authoritative' version of the process needs to be defined;
- Before procedure-writing begins, a standard layout or format needs to be decided, i.e. some kind of 'style guide';
- Use of flowcharts can help in effective recording of how processes work;
- Process 'ownership' must be clearly stated;
- Use plain language as used by those writing and using the procedures;
- The level of detail depends on the skill and knowledge of the user and may also be a function of statutory requirements;
- Review documents with those who will be using them, before signing off.

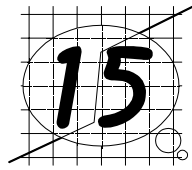


1. See for example, the Section on 'Duties for Employers' in the Victorian Occupational Health and Safety Act, 1985, Section 21.

"In an unplanned business, things just happen, i.e. they crop up. Life is full of unforeseen happenings and circumstances over which you have no control.

On the other hand, in a planned business, things still happen and crop up and so on, but you know exactly what would have been the state of affairs if they hadn't."

Mark Spade in 'Business for Pleasure'



Planning the Implementation of a Quality Management System

“If it’s worth doing, it’s worth planning”

Bill Jarrard

Planning is essential for any work that is meant to have lasting benefits. In the context of quality management systems, the objective is to focus on the long-term benefits of standardisation. This also means planning for its integration into the strategic business approach. We both have been involved with organisations that have not planned the implementation process well. The focus usually tends to shift to the short-term objective of ‘just getting across the line’. Stress builds up, the workload is not properly shared, and the opportunity for real growth and positive change is lost.

Needless to say, it doesn’t have to be that way!

The first step in making a good plan is to create a timetable of the systems development process. In doing this, it is important to ‘cut the garment to suit the cloth’. Our observation is that those organisations with the most positive experiences are those which:

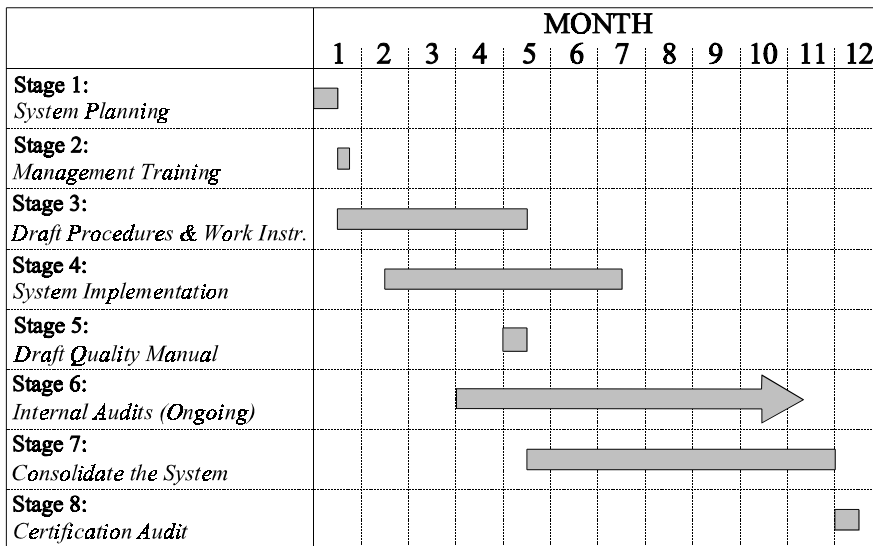
- Have good management leadership;
- Have taken the project seriously, looking to the benefits and insisting on real process improvement and effectiveness;
- Have planned ahead and are not overly rushing the process;
- Have involved everyone;
- Have taken the time to really understand what the ISO 9000 family of standards is all about, and what they are trying to achieve in business terms.

The amount of time you need to allocate varies with the size of your organisation. For a company of a few people, implementing a system might be completed in about four to six months. In a very large company of, say, 2000 people, it could be appropriate to budget two years. Most organisations of 40 to 80 people could realistically estimate 10-15 months.

Other factors which determine the size of the effort and the time taken are the quality of existing systems, geographic dispersion of the enterprise, the complexity of its processes, and the availability of internal resources.

Having established a reasonable time-frame, it is useful to set it out in stages. A 'Gantt Chart' can be a useful way of programming the stages, and establishing targets for each of them. An example is shown below:

Example of a Quality System Implementation Gantt Chart



The following factors need to be considered when planning the project:

- The amount of work to be done and the available resources.

In many small companies there are not many people who have the ability to conceptualise processes, and so the documenting stage may rely on relatively few people.

- Any needs for urgent improvement.
- The long term nature of implementing some elements.

For example, in a project construction company the design phase may take months or even years, and documentation and development of this activity to an adequate standard of control may also require a significant time allocation.

- The state of development of the current systems.

Jeff recalls his experience with a small, high-technology plastics company. The process of system development was originally thought to be straightforward. However, after some weeks it was realised that the basic product coding system being used represented such bad practice that it needed to be totally replaced. All work relating to documentation of other processes was put aside until this major weakness was corrected.

In another organisation, it was found that the skills management system needed to be fully redesigned, to make it effective and consistent with modern competency outcome approaches. This became the long-term development exercise that defined the overall time-frame for the system's development.

- Sometimes certain parts of the system form prerequisite interfaces to others.

For example, in a manufacturing company, it would probably be necessary to first ensure all measuring equipment was calibrated before embarking on the approval of jigs and tooling.

- The degree of decentralisation of the organisation.
- For larger companies, the number of people involved.

Having made a really good plan, the rest should be a cinch. Let's move to the next chapter and find out!

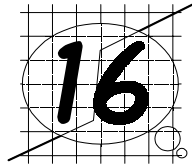
Chapter 15 - Key Points

- Good planning is essential to a successful implementation;
- First steps are to make a list of activities and time-table them;
- Take into account that certain tasks may need to precede others;

- Conventional tools of project planning (Activity Networks, Critical path analysis, Gantt charts, etc) can be used to advantage;
- Resources need to be considered and allocated;
- Any urgent and prerequisite improvements need to be factored in.

“Failing to plan is planning to fail”

Tostain



Managing the Implementation of a Quality Management System

“Lots of folks confuse bad management with destiny”

Kin Hubbard

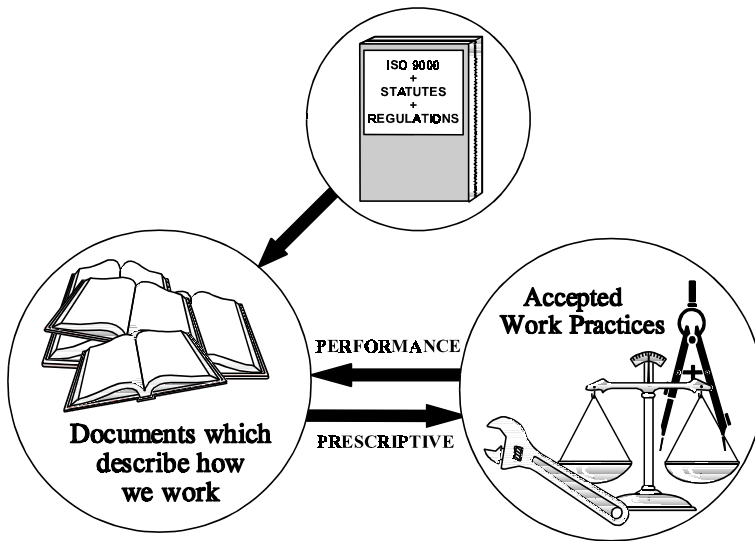
You may have noticed that the importance of good management was mentioned a number of times in the previous three chapters. In this chapter we present some further comments and suggestions on the management of the whole implementation process - both the phases we have already talked about, and the next step which is, using the words of ISO 9001 itself [4.1(f)]: *“implement actions necessary to achieve planned results and continual improvement of these processes”*.

This final phase of the implementation process is one in which the process documentation is aligned and linked with the accepted work practices, bringing them together to the point where what you say is what you do, and vice versa.

You will recall from Chapter 12 that any management system essentially consists of a set of documentation reflecting the way work is carried out to achieve an intended objective in compliance with relevant statutory, regulatory and standards requirements. Remember also that the objective of a quality management system is to satisfy Customers. We illustrated this with a diagram, which we have now developed a little further. It is shown at the top of the next page.

When we create alignment between practice and process documentation, we can do it in two ways.

One way is to document the process as it is currently done, on the basis that this has been developed over time as the best known way. We call this a



“performance” approach. During the implementation phase, the focus tends to be on modifying process documentation to ensure that it includes everything it should, and that it is correct. Many production-related documents are in this category.

The other way is to document the process in the way that it must be done, and then ensure that people work that way. We call this a “prescriptive” approach. During the implementation phase, our focus tends to be on modifying people’s behaviours, so they follow the approved methods, ultimately removing undesirable variation in the way work is done. Typically, processes that have a high inherent risk component are handled this way.

In practice, most processes are implemented using a combination of the prescriptive and performance approaches, but there is usually an overriding emphasis on one or the other. Sometimes, we oscillate between the two. For example, to implement a process that doesn’t actually exist yet, say Internal Audit, we would first design a process and trial it (prescriptive), then modify the audit system to suit, as we refined and continually improved our method of conducting audits (performance).

Knowing which approach to apply when is a matter of wisdom and experience. We have seen considerable damage done in a particular Sales Department when the manager walked in and dropped a brand new set of procedures on the desks with the command to obey or else. On the other hand, an overly performance-based approach can result in very weak system control, by merely documenting bad practice and complying with it perfectly.

Training is an important factor in effective implementation. Ensure it is well-planned and presented and closely linked to application, so that people at different levels, functions and locations are brought into the system as it spreads to their activities. There are a number of service organisations that can help you with this, such as the Australian Organisation for Quality⁽¹⁾, which has provided practical training in quality for over 25 years, and various certification bodies⁽²⁾. Some consultants can also provide good training. We suggest you screen them carefully.

Start training at the top, with management. This is most important, as ISO 9001 expects considerable management involvement in, and direction of the system. In most cases we would recommend you do this immediately after the system has been planned, for these reasons:

- They can see what procedures are required - they are often relieved to find there are fewer than they feared;
- Their process ownership can be revealed;
- They can be led to 'buy into' the system.

It is important to give them a broad understanding of quality systems and of the overall implementation process, so that they can lead effectively in their own areas of influence. At the end of it, everyone ought to know in practical terms exactly what has to be done. You might consider half to one day for this. Note that the chief executive must figure prominently as a participant. Giving a five-minute pep talk, telling everyone this is top priority, and then going off to 'more important' things, is role model leadership of the worst kind.

At other levels, provide training to coincide and align with people's involvement in the system. It can be shorter and focussed on their particular role and on how a quality system will affect them.

More specific forms of training can also be useful, depending on how you are carrying out the implementation and on requirements particular to your business. Examples include procedure preparation, internal quality auditing, and establishing a calibration system for measuring equipment.

Do make sure that training incorporates modern principles of adult education. It must be relevant and interesting, and cater for a range of learning styles. Don't just wade laboriously through ISO 9001 - this is tedious, boring and counterproductive.

*"Training without a link to application
is merely entertainment"*

Peace of Mind

"We originally went into this for marketing reasons, not expecting to get a lot out of it, but it hasn't worked that way. It has reduced the level of stress in the business, by reducing the amount we are carrying around in our heads. I don't wake up in the middle of the night thinking, 'Jeez, has he done that?!'. It's taken the responsibility of individuals and spread it."

Marketing Manager of an electrical service company

So far we haven't said anything yet about writing the Quality Manual. We suggest you do this after the procedures have been drafted. Some people feel that it ought to be the first document written, as it defines the policy for the system. Whilst you would normally have some idea of what your policy would be, in practice people often don't really know how this will emerge in detail until they come to terms with integrating the requirements of ISO 9001 and other codes into their processes and documentation. By delaying its preparation, a better document will generally be produced. In addition, time is not wasted on frequent rewrites, as more details arise from the system development process.

The next step is the actual work of implementation. Here, people become familiar with their documents, which are aligned with work practices. In some cases, work practices are modified. More often, documents are changed to bring them into line with the way work is actually done. At this point you are likely to encounter the Process Procedures Perversity Principle of the previous Chapter, and management decisions may be required to deal with it.

A team approach, involving both the people working on the process (the process 'owners') and those working in the process, is essential. The best way is for process owners to identify who needs to be familiar with the documents they are sponsoring. They then schedule training with them, to go through the documents and point out any changes to current practice. They encourage feedback, so that comments like "*but what about...*" and "*we don't do it quite that way*" will be aired. This leads to improvement in both documents and processes, as well as to group ownership of the developed system. It is also a good idea to set a date from which you will work according to the newly developed system. The process owner needs to follow up to help get the system bedded down.

When you are sure you really are working to the documented system, it is time to conduct internal quality audits. This process is a service within the organisation in which people trained as internal quality system auditors

review the processes to determine whether there are any gaps between the documented and the practised systems of work. They also review the overall effectiveness of the system in identifying and meeting Customers' requirements.

Good auditing is a positive and welcome episode. Unfortunately, many people have bad experiences with a variety of hostile or authoritarian investigations under the 'audit' label. We know of companies (who obviously had not understood the quality message) where audits were used to drive the quality system into reluctant departments. Auditing is meant to be a help, not a hindrance; informative, not intimidatory. If you think of auditing as inspection or policing, you are unlikely to realise real benefits, and can actually sabotage your whole system development program.

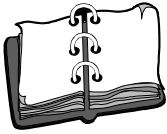
In some organisations where this has been a problem in the past, they got around it by avoiding the term 'audit' altogether, and calling it something like a 'process review' instead. A better long-term solution is to change people's perception of what 'audit' means. Thoughtful training and support of your internal auditors will help towards this.

When you have identified the gaps between intent and reality, close them through a process of corrective action. Then operate the system. Improve it. Build up history. Gain experience. Look for benefits. And if you can help it, don't join the undignified rush to certification!

Chapter 16 - Key Points

- The final phase of an implementation is to ensure alignment between process documentation and accepted work practices;
- There are two ways of doing this - the 'performance' approach and the 'prescriptive' approach. In many cases a combination is the practical answer;
- Training is an important factor in effective implementation, and has to start at the top;
- Writing the Quality Manual at this seemingly late stage can avoid a lot of waste and re-writes;
- Alignment between processes and documents is a team effort - it needs to involve all those with relevant knowledge;

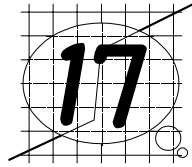
- The internal audit should be a positive and helpful experience - if it isn't, this needs to be addressed;
- It helps to identify clear benefits from having and applying the system.



1. Australian Organisation for Quality
<http://www.aoqvic.org.au>
(This is the Victorian State Branch site, which has links to the other State Branches)
2. The various certification bodies (CB's) all provide training. However, the standard varies enormously, both in terms of intellectual content and presentation. You can locate a range of CB's through a link at **www.qap.com.au**. Standards Australia provides an extensive range of offerings, as do Quality Award Partners Pty Ltd (**www.qap.com.au**) and Quality Insights Pty Ltd (**www.qualityinsights.com.au**).

“If standards are not formulated systematically at the top, they will be formulated haphazardly and impulsively at the bottom.”

John C. Bieglar



Keeping the System in Shape through Audit

*“The first to present his case seems right,
till another comes forward and questions him”*

Proverbs 18.17

ISO 9000:2000 defines audit as:

A systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

From this we can establish the three key steps in audit:

1. Obtaining evidence (this can take many forms such as objective, subjective, historical, scientific, etc.);
2. Evaluating the evidence;
3. Making a judgement on the state of the quality management system.

In many ways, conducting an audit is like dropping into a movie for 15 minutes, conducting a critical analysis, and then trying to describe the overall plot. It is always only a sample of reality, and needs to be interpreted in the context of the understanding held by those who have been there for the whole time. The way that we carry out our critical analysis is therefore very important.

Audits need to cover an appreciation of risk assessment in what the auditee does (the processes). Processes are more than just documentation; they consist also of institutional practice and knowledge that is sufficiently

formalised so it is not just held in the minds of individuals. Audits also need to cover risk management: the consequences of the actions (the outcomes). And in this context, it is the objectives (which we discussed back in Chapter 8) that form the anchor point for the audit. Your organisation should have systems that are relevant to your own objectives, that suit the character of your own organisation.⁽¹⁾

For some organisations, audit is a vital part of their business activity - a core competence that delivers real benefit. On the other hand, for many other organisations, audit is a drag, something done mechanically to fulfil requirements of ISO 9001 and to keep their external auditor at bay. Most organisations probably fit somewhere in between these extremes. In this chapter we take the positive position in outlining some approaches and suggestions that will deliver real benefit to your organisation.

The Right Approach

In an earlier chapter we made the point that the fundamental purposes of internal quality audit are (a) to verify that the system is continuing to work as intended, and (b) for early detection of deterioration of the system. The objective is to ensure that the quality management system retains its integrity, and is able to support the achievement of Customer satisfaction.

Many people think that audit should just focus on finding problems, often of a trivial nature. (A kind of 'Where's Wally' exercise in the quality management system.) Perhaps it is because this approach is so widespread, that audit has negative connotations with many auditees (victims?). Not surprising really, if they have experienced some of the worst aspects of this kind of 'gap analysis' approach.

When we conduct training workshops for auditors, we often ask participants to consider the consequences of taking the fault-finding, gap analysis approach to auditing. When this negative approach is used, people tend to feel criticised and denigrated. And the better the shape the system is in, the longer the audit takes, because the auditor constantly looks for problems that don't actually exist. This simply prolongs the 'torture'. Little wonder that people then come to regard their tormentors, as well as the audit process itself, with disdain and sometimes devise creative strategies of concealment or avoidance to alleviate the unpleasantness.

On the other hand, it is possible to approach audit using what we call a Positive Audit™ technique⁽²⁾. This requires more skill and knowledge than the alternatives of the negative approach, or even mindless box-ticking on pre-prepared checklists. However, it does deliver much better outcomes for the organisation.

In audits, trust is the only currency we have to spend. Each time we raise an issue, we make a withdrawal from the 'trust account'. So we constantly need to make deposits to the 'trust account' through our behaviour and interactions with auditees. We have to build the social capital of the organisation so that our 'trust account' stays in positive balance.

When we employ Positive Audit we seek to verify that the system has all the required integrity it needs. We seek to catch people 'in', not 'out'. We do this by looking for the necessary evidence, both objective and subjective, that will demonstrate consistent and thorough implementation and effectiveness of the system. Our questions will reflect this.

For example, when we open the audit interviews, we will avoid saying things like, *"I'm going to check that you're following the procedures."* It comes over much better as, *"I want to take a look at the way work happens, and compare it to the way it's described in documents. If there are any differences, we can discuss that, and you can decide how you'll bring them back together."* There is no hint of judgement, and we avoid power plays.

During the audit, instead of searching for uncontrolled documents, for example, we might formulate a question such as: *"Can you show me how you keep all your documents and information up-to-date for people?"* If we can't find evidence of an adequate level of control, or the evidence is inconsistent, this may point to issues that need further exploration.

Because the approach is so affirming to the auditee, they usually welcome audit. When there are system weaknesses or issues to be addressed, they don't feel personally attacked. In fact, our experience is that the auditee will tell the auditor where the problems are in the system: *"Stop looking; we know we don't do it and need to look at the problem."* We also often invite the auditee to draft the relevant audit finding in a way with which they are comfortable and that still accurately defines the issue and recommendations for action. This is always well-received, and builds trust and ownership of the issue.

The diagram on the next page represents the options we have discussed, and shows more clearly how they influence both the time the audit takes to complete, and how people feel about it. The danger zone is in the shaded area: an unskilled auditor spends far too long being negative about a system that is actually working well. It doesn't make sense, does it! When a negative auditor is let loose in a good system, lasting damage can result.

		AUDITOR'S APPROACH	
		Positive Audit™	Negative Gap Analysis
CONDITION OF THE SYSTEM	Bad	<p><i>The audit takes a moderate time to complete, because the number of issues found tend to slow the auditor down.</i></p> <p><i>The auditee feels encouraged, because the findings are presented as opportunities for improvement.</i></p>	<p><i>The audit takes a short time to complete, because the auditor is looking for, and finds, lots of problems.</i></p> <p><i>The auditee feels discouraged.</i></p>
	Good	<p><i>The audit is completed quickly because, as the auditor seeks evidence to confirm system integrity, it is readily found.</i></p> <p><i>The auditee feels affirmed.</i></p>	<p><i>The audit takes a moderate-to-long time to complete, because the auditor is looking for gaps that don't exist!</i></p> <p><i>Auditees feel angry and frustrated because the auditor won't accept the system integrity.</i></p>

The Positive Audit approach has direct benefits for the organisational culture and people’s view of quality. It fits very well with self-assessment approaches, which we discuss in Chapter 21, so you can move smoothly into higher levels of quality management. A further benefit is that as your system integrity improves, it takes less time to audit the system. We know of organisations where the time required to internally audit the system has been halved over a couple of years, and has also been similarly reduced for the external auditor. This has translated into direct cost savings.

So why does the positive approach work? Instead of telling the auditee what is wrong with their process, the auditor relies on revealing to them, through focussed questioning and discussion, that dissonance (or lack of harmony) exists within the system. Dissonance is revealed when it becomes apparent that the ‘realdeal’ doesn’t match the ‘ideal’. This creates discomfort, and in this situation people often try to minimise the discomfort by various strategies such as avoidance or downplaying the difference. If they take this course, the auditor will still support the auditee, but does not allow them to

The Benefits of Positive Audit™

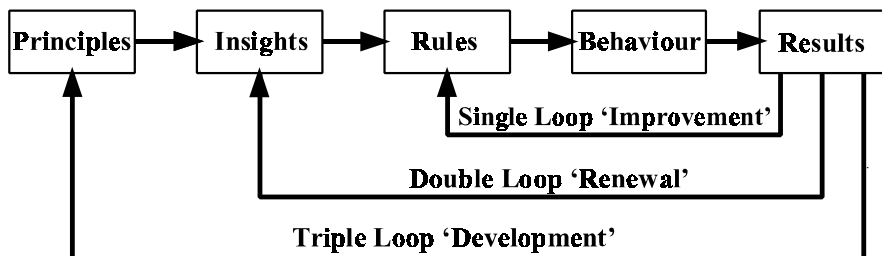
1. *It builds the quality culture in the organisation.*
2. *People feel better about audit, and welcome it (even ask for it!).*
3. *People are more open in audits, and offer information more freely. This leads to more thorough audits.*
4. *Because the audits are more thorough, the standard of the system improves.*
5. *As the system integrity improves, the system becomes more stable and reliable. This enables audits to be done more quickly.*
6. *The overall resources applied to audits can be reduced, without compromising system effectiveness.*
7. *There are fewer problems for external auditors to deal with. This can improve Customer relationships, and for certification audits, enable the external auditor to provide a better service at lower cost.*

avoid the consequences of the dissonance they experience. Instead, the auditor guides the auditee towards the actions that need to be taken to restore harmony within the system.

Positive Audit™ enhances Organisational Learning

When audits are done this way, they create an opportunity for organisations to learn, by really exploring their processes, and indeed the whole quality infrastructure. This is where the eight quality principles we reviewed in Chapter 7 become relevant. They can support a thorough organisational learning dynamic in the audit situation.

Organisations tend to learn at a number of levels, as the illustration of Collective Learning Loops below shows.⁽³⁾



Single loop learning is characterised by a review of the results of a previous action to improve the way things are done. However, the underlying assumptions are not questioned or reviewed, so no significant changes occur in the strategy, structure, systems or culture of the organisation⁽⁴⁾. It is possible for the organisation to evolve, but there is no intentional move away from the accepted norms. In many organisations, this is the predominant learning style. In the single-loop paradigm, auditing tends to require strict compliance, which can be essential in risk areas such as medical procedures and dangerous good handling. It may involve the embrace of incremental improvement ideas from the diagnostic reports (e.g. revised performance measures, improved effectiveness of the audit system, some use of improvement groups). However, recommendations that go beyond changes to the 'rules' (e.g. correction of the causes of "what's wrong here") are avoided. It can become a rigid approach - a sort of quality system version of 'annual training'!

Double loop learning requires a higher level of insight. It goes beyond the examination of consequences of actions, to questioning underlying assumptions. The rules may be challenged. At this level, there may be uncertainty, as insights are developed and processed. This may generate conflict, create alliances, generate political forces to negotiate and test consensus.⁽⁵⁾ Because it involves not just evolutionary improvement, but renewal of the organisation, the formal and informal systems in the organisation may operate in parallel.

The beginnings of double loop learning can be seen in such things as review of organisational structures, policies and behaviours. People in the company are permitted to suggest both incremental and radical changes. For example, in one organisation we know, they changed the organisational structure: the functional structure paradigm was replaced with a process-oriented structure.

Triple loop learning occurs when the fundamental purpose of the organisation's approach comes into question, or when there is an attempt to

"Nit-picking auditing, even at its best, never gets beyond single-loop learning. As the pace of market and other change speeds up, companies are questioning what they do at deeper levels. For example, for some the strategic cycle has shortened from an annual event to monthly reviews. The Positive Audit™ approach supports this."

David Scott

align principles and actions. It often results in the development of a whole new form of the organisation.⁽⁶⁾ This can create significant debate and tension, particularly if the issues are repressed, because the real drivers of behaviour amongst people may be questioned.

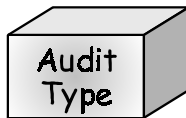
However, although difficult, this kind of approach can lead to real growth and development of an organisation. The eight quality management principles, explained in Chapter 7, are particularly relevant at this level, because they provide us with a conceptual framework to understand and apply quality management. While we wouldn't normally use the principles as the basis of audits themselves, they do provide an anchor for interpreting audit outcomes and deciding on appropriate directions within the organisation.

Internal quality audits can be used to facilitate learning and development at all levels in organisations. The receptivity fostered by the Positive Audit approach is the first step. It will not happen with other approaches to auditing.

The Audit Building Blocks

Type	Scope
Depth	Criteria

There are four key building blocks of an effective audit methodology. All four need to be melded to create the Positive Audit approach. Without the rigour they provide, audits may become friendly, but weak and ineffective.



There are two types of audits: internal and external, and they have very different purposes.

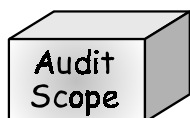
When an *external* audit is done, auditors come to our organisation to check our systems and make some judgement about the fitness of the overall organisation. If it is a Customer (second-party audit), they tend to look at those things that directly affect the integrity of the products they receive. Their audits may be quite narrowly focussed as a result. Auditee companies may find that their various Customers make conflicting demands upon them. This used to occur in the automotive industry until QS-9000 was developed, and in the construction industry prior to the widespread certification of the supply chain. It still tends to occur within some industries, such as the food industry supply chain.

Third-party audits, also called certification audits, are conducted by a competent body in a proxy status to second party audits. The purpose of these is to verify that organisations have a comprehensive system that will consistently and sustainably meet Customers' requirements. These audits use accepted standards such as ISO 9001 as the benchmark. The next chapter describes this process in more detail.

Internal audits, on the other hand, have a different purpose. They are conducted by an organisation using either internal people who are competent for the task, or qualified auditors that are engaged on an outsourced basis, to verify the integrity of the systems to achieve organisational objectives. ISO 9001 Clause 8.2.2 identifies four sub-elements of this:

- Do the value-adding processes operate as planned?
- Does the system address all relevant aspects of ISO 9001 to the appropriate extent?
- Does the system in action match the system as it is documented?
- Is the system effective and sustainable?

Compared to external audits, internal audits should therefore be the more rigorous test of the system.



Audit scope refers to the boundaries of any individual audit. They can be broad, (such as the whole quality system in an organisation) or quite narrow (such as the sterilisation procedures within a hospital department).

The scope of an audit helps us to focus our investigations, and ensures a meeting of the minds between auditor and auditee on what will be the subject of the audit. Having said that, it doesn't mean that we ignore anything that we might happen to identify outside this scope, but that is nevertheless an issue for attention.



The concept of Audit depth relates to the thoroughness with which the management system is audited. At the basic level, *records audits* can be good indicators of the ongoing health of the system. They are quick and easy to do, and can be a good place to start if a problem is suspected. However, the records are only as reliable as the system that created them.

Product audits provide a greater level of confidence. They are done to verify that the system is creating product to the required specifications. In both manufacturing and service environments such audits should be conducted on a regular basis, although our observation is that this is not practised widely. However, the automotive standard QS-9000 does insist on product audits.

Usually, organisations carry out *compliance audits* as their regular regime. At this depth, we explore the extent to which the system as devised and documented matches the way that work activities and processes operate in

practice. So, compared to the product audits which focus on specifications, compliance audits focus on system-related requirements, such as external regulations, licences and standards, or policies and procedures of internal origin. They are normally done throughout the system on a routine basis.

At greater depth still, *system audits* verify the extent to which the whole management system has been fully established and implemented, incorporating all the requirements of all relevant codes, standards, regulations, licences and other documents. When we conduct system audits, we normally check through the full depth (compliance - product - records) to ensure that the system is thoroughly verified. Certification audits are normally conducted as system audits.

Finally, *management audits* evaluate the quality management system in the context of broad and comprehensive organisational and stakeholder objectives, verifying the integrity of the system in the context of the other interrelated systems. These kinds of audits are done infrequently and it normally requires people with management experience and M.B.A. level training for them to be done properly.



The audit criteria form the set of requirements which, in a Positive Audit approach, **we anticipate have been effectively implemented**, and against which conformance of the system is judged. The criteria are very important: they anchor the audit, and avoid the situation where the auditor makes personal judgements about what a system should or should not address. The criteria provide a benchmark for all concerned. When the criteria are defined for an audit, the organisation's management gain a clear idea of the degree of robustness and integrity of the system.

The audit criteria may be as simple as a single instructional document, or they could embrace a comprehensive product or system standard (such as ISO 9001). They could even consist of a collection of interrelated licences, standards, codes and legislation.

Audit Strategy

When people initially learn to audit, they are usually introduced to the concept of checklists. They are not a mandatory part of ISO 9001, although the early drafts of ISO 9001:2000 did propose their use as a mandatory requirement.

"If the only tool we have in our toolbox is a hammer, it's amazing how everything starts to look like a nail."

Old saying

A commonly taught method is to take a procedure, photocopy it, and then go through the paragraphs or flowchart symbols and check that what the procedure says

is actually being done. While this can be a reasonable way to conduct implementation audits, the approach has a number of shortcomings:

- It can lead to what McDonalds Restaurants call 'shop blindness'. We look for the obvious and don't see the system from a truly objective perspective. We fail to identify risks and problems that need to be confronted;
- Our audits become confined to the sometimes narrow or brief content of our procedures. We don't fully review the system;
- Once implementation at the procedural level has occurred, where do we go? Our audits can become boring, predictable, tired and stale. We put regular efforts into our audits, and we know there are ways our system should be improved, but we can't seem to cut deep enough, or get to the real issues.

With this, we are not saying that testing procedural compliance, as an audit strategy, is not worthwhile. It does need to be done. We do need to verify that what the documents say and what people do are linked by intention and not accident: that people know what their documents say and that the documents reflect what people do. We need to be sure that this is not just random overlap of unrelated system components. However, there is a limit to the effectiveness of procedural audits, and the use of a variety of audit tools and techniques can produce much better results.

Audit trails are a good way to verify the reliability of the system in delivering Customer requirements. In this approach, an order, a job, a service, a project or a brief is tracked through the value-adding process chain from beginning to end. This is reasonably straightforward to do in most manufacturing organisations, but is also well-suited to financial services or human services.

A **risk focus** identifies as many as possible of the potential hazards and risks that can occur and seeks to identify how these risks are controlled within the processes. Obviously this kind of audit is more suited to hazardous

industries, such as food and pharmaceutical manufacture, or power generation. However, it can be done in any process. Failure Mode and Effects Analysis, which is mandatory for automotive parts manufacturers, requires a risk assessment of both processes and products, so there are many possibilities for the risk approach.

External compliance audits are becoming increasingly common. In this approach, we take, for example, a regulation, licence or standard and analyse the specific requirements the organisation should meet. This may be formed into a checklist - and probably should be, to ensure all aspects are covered - and kept as a record for reference at some time in the future in the unlikely event of failure.

Process controls can be used as the basis for auditing the system. In this approach, we would identify all of the process inputs, perhaps using a fishbone diagram as shown in the context of defining the process control requirements of ISO 9001 in Chapter 9. Alternatively, a mind map could be constructed to identify as many of the linked inputs and controls to a process as possible⁽⁷⁾. We then work through these items to verify that the inputs to the process (related to people, materials, methods, equipment, systems and environment) are adequately controlled and managed.

There are other approaches to audit as well, for such aspects as Customer service/satisfaction outcomes, emergency preparedness, equipment reliability and management, process capability and so on. However the four strategies outlined above should offer some improvement over basic procedural compliance audits.

A while ago, Jeff was conducting audit training in a pharmaceutical company. As part of the course, attendees were required to conduct an actual audit, for competency assessment. The team decided to try the compliance approach, using Therapeutic Goods Administration regulations as the criteria.

The auditee's response?

"That was the best audit I've ever had! Now I know I'm doing this job correctly."

Questions and Answers

OK, we are now ready to audit. We understand the importance of a positive approach. We know how the building blocks of audit type, scope, depth and criteria influence audit integrity. We have devised an approach to rigorously

assess the system. All we need to do is go out and ask some questions to get the information we need.

The purpose of this phase is to obtain evidence by which we will evaluate the system. By far the best way to do this is to engage the auditee in a discussion about their processes. Have you ever been to a function, and found yourself with a person who engages you in conversation? Before long, you find that you have told them all about yourself, because they seem so interested in you, and ask you all sorts of questions that help you reveal yourself in a 'safe' way. Chances are, they have used the six words that open up conversations and help provide informative answers: WHAT, WHY, WHEN, HOW, WHERE, and WHO (often called 5W1H).

We can blend these exploratory words into a larger range of questioning techniques that can be selected and used to achieve specific investigative purposes in the audit⁽⁸⁾.

QUESTION TYPE	PURPOSE	EXAMPLE
Open	Good opening question to get the auditee talking. Incorporates the 5W1H words. Each answer leads easily into the next question.	<i>"Would you please explain to me how you process this kind of request?"</i>
Closed	Designed to elicit a simple response, often of a yes/no nature. It is useful for confirming facts, or gaining commitment, or bringing the conversation back to the auditor's control. Often includes the words do, can, did, have or will.	<i>"Do you always do this job this way?"</i>
Alternative	A special form of closed question to help decide how variants of process flow occur, or how decisions are made.	<i>"If a Customer had a small complaint, would you raise a complaint advice, or would you just fix it and move on?"</i>
Probing	These questions are used to explore an issue at depth. They can be threatening, so body language and intonation are important.	<i>"You mentioned a moment ago that when you receive the service requests, important information is sometimes missing. Can you explain how often this happens, and what you do when it does happen?"</i>

Challenging	These can be used when an auditee's answer reveals a lack of process understanding or a lack of control of process, or if it contradicts a previous answer.	<i>"You indicated that you review your people's training needs annually. However on these training records there haven't been any entries for two years. Can you explain to me why that might be?"</i>
Reflecting	This kind of question is used to test the auditor's understanding of what the auditee has said.	<i>"Let me explain what I think you have told me, and tell me if I have got this right..."</i>
Leading	Although it can be manipulative if not used carefully, this kind of closed question can be useful to move quickly through a series of options and get to the point. It can be combined with reflecting questions.	<i>"So, based on what you have told me, you always do the job this way?"</i>
Summarising	This is similar to reflecting questions, and is used to 'wrap up' the interview, tie together the main points, and show you have good understanding.	<i>"OK. The job cards come in here, are sorted by the supervisor, and allocated to each operator in due date sequence. The completed ones are checked and signed off by you at the end of the day. Have I got that right?"</i>

Communication is a complex process, and our tone of voice and body language can often convey more than the content of the words themselves. If we can create synergy between our words, intonation, posture etc., we can communicate most effectively. There is a great deal of information available, and as auditors, we need to become skilled communicators⁽⁹⁾.

In the audit process, people will tell us all sorts of things, with the best of intentions, that may or may not be correct. We need to obtain evidence to verify the system integrity. As simple as it may sound, the best way to do this is to ask! The two most powerful words in an auditors vocabulary are "Show me". When we ask, people are usually only too happy to oblige. Until we do, they often don't think to offer.

A Sequence of Questions⁽¹⁰⁾...

- *What do we do to achieve this objective?*
- *Why were these actions selected?*
- *How do we check their effectiveness?*
- *Are they effective?*
- *What do we do as a result of the check?*
- *Can we measure the extent of achievement of this objective?*
- *Can we improve this?*

There are various non-threatening ways we can ask for evidence. For example:

- Can you show me an example of that?
- Can I check some files?
- Could we go and look through that area?
- Let's review those contract documents.

Finally, three points on audit technique:

1. Our selection of evidence is important, so when we review a process, the nature of the sample we take is also important. There is a variety of ways we can approach this, such as:
 - calculate a sample size to match a statistical confidence level using sampling tables such as AS1199,
 - randomly select a number of files which should be representative of the whole,
 - take a period of time (a day to a week) and check all evidence for that period,
 - take a small sample and if there any problems enlarge the sample further (double-sample).
2. Our audit reliability will be enhanced if we can look at an issue from a number of different perspectives. This is called 'triangulation'⁽¹¹⁾. For example, we may discuss a matter with both management and operators, review work being done, check performance measures, and look at Customer feedback.

Common Factors

Regardless of the approach you choose, there are a number of aspects that should be reviewed in any audit:

- *Availability of relevant documentation*
- *Document control*
- *Authorities & responsibilities*
- *Training of people interviewed*
- *Effective implementation of operational controls*
- *Achievement of objectives & targets*
- *Calibration*
- *Monitoring programs*

3. Remember to make lots of notes in your audit, not just of the problems and issues you might find, but also the good things (this can be especially important in risk-critical areas, where your notes may become important evidence at some time in the future). Give feedback to your auditees as you go, and make sure that you are agreed on the issues and what will go into the report BEFORE you leave the area.

Wrapping it all up

The audit's done, and all that remains is to write the report. This is the finale to the whole process. It is an aspect of the audit which has 'make-or-break' potential. A good report can have major impact amongst management; a poor report can lead management to think that the whole process has little to offer.

One of the worst reports Jeff has seen was simply a handwritten note on a pre-copied audit report form, which said: "We done a *[sic]* audit and it was all OK." Usually, they just consist of a series of ticks and crosses on checklist boxes, with the occasional comment. Rarely are they of a standard that one would prepare for management on any other matter. Yet, to attract attention and offer real credibility, we suggest that the latter approach is the one to pursue. Reports should be presented professionally.

In the Dark

During an audit training workshop in a financial institution, the competency audit was going well. There was good rapport, imaginative use of the various questioning techniques, and important issues were being investigated.

At the end, the auditors said, "Well, thank you for your participation. We'll give you the report in due course." With that, they snapped their folders shut, and left.

Jeff went back later, and asked the auditees how they felt about the audit. "Good, but how did we go?"

This is the common question. We all want feedback, and it is an essential part of the audit process to provide it. It's not just good manners. It also represents our chance to make sure we have understood correctly, before we commit ourselves in the report!

Audit reports should be prepared for a number of audiences:

- The auditee department, so they can obtain feedback on how well they do things, and obtain information on issues and recommendations for correction or further improvement;
- The organisation's management, so that they can see how well the organisational systems are working;
- External auditors, so that they can see how well the organisation is self-managing the systems to achieve objectives and ensure sustainability into the future.

A basic format for reports could follow this structure:

WHAT WE DID - Describe the audit criteria and scope, and tell the story of the way the audit was approached.

WHAT WE FOUND - Explain the specific observations and sightings throughout the audit. This is where

"Never leave the Area till you see the people nod."

Les Blackwell, Auditor

your copious notes from the audit process itself are invaluable. Include here both positive evidence sighted and matters that need further investigation or correction by the auditee.

ISSUES TO ADDRESS - Based on the evidence sighted, the report needs to clarify the nature of any issues that must be addressed. This will enable you to collate various aspects of evidence, which may point to an underlying problem with the process, or even to deficiencies in the application of one or more of the eight quality management principles. Of course, this will have been agreed during the feedback at the end of the face-to-face stage of the audit, so it will not be a surprise to the auditee.

RECOMMENDATIONS - This is a concise summary of what should now be done, written in such a way that the underlying issues are clear and can be understood months into the future. Often, these are transferred into the corrective action system. We have seen many creative terms for the documentation of these such as Corrective Action Requests (CARs), Audit Findings (AFs), Company Opportunities for Improvement (COFIs), Corrective and Preventive Action Advices (CAPAs) and System Improvement Notes (ie SInS - this is probably going a bit too far!). Note, by the way, that, to many people, the word ‘corrective’ carries the implication that they’ve done something wrong. In turn, this can create a psychological barrier to improvement.

When the system is basically sound, the recommendations can be followed up individually by an auditor, or, if they are not too serious, reviewed in the context of a subsequent scheduled audit. When they point to a serious deficiency in the system, it may be wise to reaudit the system in the same way the original audit was done. Again, plenty of notes should be taken to substantiate the decision to close out the recommendation, or to keep it open for later review of it is not fully addressed.

“Audit’s really got to be a positive experience for people. You’ll get them the first time, but if it is not a positive experience they won’t come back. You’ve got to treat them like Customers”

John Bottomley, Audit Co-ordinator

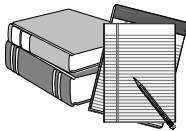
TEN COMMON TRAPS IN AUDITING!⁽¹²⁾

- *Failing to plan the audit*
- *Failing to make (and use) a checklist*
- *Letting the auditee pick the sample*
- *Not looking around*
- *Jumping to conclusions*
- *Remembering what you used to do*
- *Failing to give feedback on your findings*
- *Letting the auditee control the time*
- *Failing to do follow up of the corrective actions on the findings*
- *Spending too much time learning what a supervisor*

Chapter 17 - Key Points

- All systems deteriorate if no control is applied to them. The audit process helps to maintain and improve the integrity of quality systems;
- Three key step in the process are obtaining evidence, evaluating this evidence and then drawing conclusions about the state of the system;
- The approach to auditing should be one that causes both parties to see the process as positive and rewarding;
- The benefits of auditing can be greatly enhanced if it is seen as a learning experience at a number of levels;
- Key building blocks of an effective audit methodology are Audit Type, Scope, Depth, and Criteria;
- The basic procedure audit strategy can be enhanced significantly by adding in Audit trails, Risk focus, External compliance and Process controls;

- A good auditor has a high level of expertise in interpersonal communication skills;
- Audit reports should be prepared professionally and should not contain any surprises.

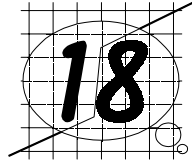


1. D Woodhouse: Australian Universities Quality Agency: Audit Manual - 2001.
2. 'Positive Audit' is a trademark of Quality Award Partners Pty. Ltd.
3. "*Becoming a Learning Organisation*", p 36
by J Swieringa, and A Wierdsma
Addison-Wesley, Cambridge, 1992
4. Ibid, p.38.
5. Ibid, p.39.
6. Ibid, p.44.
7. We are indebted to Karen Pirotta of ActewAGL for this insight.
8. A video on auditing skills, which incorporates a segment on questioning techniques, called '*Getting it Right: Advanced Skills for Auditors*' is available from Standards Australia at **www.standards.com.au**.
9. There are many excellent books on communication. One good book on the subject is:
"People Skills – How to Assert Yourself, Listen to Others, and Resolve Conflicts"
by Robert Bolton, Simon & Schuster, Sydney, 1986 and later.

10. D Woodhouse, op.cit. - used with permission
11. Ibid.
12. Quality Progress, January 1996, p. 12

“Continuous Improvement of communication skills is one of the greatest contributions we can all make to personal quality”.

From ‘Quality Thinking - Thinking Quality’



The Certification Process

“Be sure of it; give me the ocular proof.”

W Shakespeare (‘Othello’)

As explained earlier, the approach of the ISO 9000 family of standards is to ultimately develop a viable quality system, modelled on ISO 9004. This serves the organisation’s purpose of managing the value -adding and support processes to achieve Customer satisfaction, and it also addresses the needs of all stakeholders: Customers, employees, suppliers, shareholders and the wider community. Remember however, that in the present format of the standards, the requirements of ISO 9001 focus only on the Customer.

Part of the process of maintaining this system is the internal quality audit, which seeks to validate the system’s integrity and detects deterioration of the system and departure of work practices from approved methods at an early stage.

Second Party Audit

Sometimes Customers want to know how thoroughly your quality system has been implemented, how viable it is and how effective it is in identifying and meeting their requirements. When this happens, you could tell them that it meets the levels of adequacy described in ISO 9001. Because your Customers may have to put their reliance and trust in your system, and make judgements on the level of internal controls they will apply in their own organisations, they may want to come and take a look for themselves, to make their own judgements on your system’s adequacy. This would be a ‘second party audit’ or a Customer audit. This is often used by large companies on their suppliers. In the past this approach has typically been used by the Department of Defence and major car manufacturers, and current examples are food processors, pharmaceutical companies, telecommunications concerns and project companies.

In principle, this is a useful approach. It can be helpful if you have a good relationship with your Customers and they can do the audit professionally and competently. It can also be disruptive if you have a large number of Customers. Different Customers may have different, even conflicting, requirements. Sometimes they make demands which may amount to telling you how to run your business. The result can be a façade of quality hiding a pile of waste. For example:

- Beautiful Statistical Control Charts, insisted upon by the Customer, with no more practical meaning than expensive wallpaper;
- The insistence by a construction company on the use of a particularly complicated inspection and test plan which was quite unsuitable in the supplier's manufacturing environment.

In the past, some organisations have claimed second-party approvals as evidence of a viable quality system. However, there is a problem for other Customers in accepting this, because they don't really know how thorough the audit was. Jeff has observed that Customer audits can range from a competent and thorough review of the quality system, to a quick scan of the quality manual, a walk through the plant, followed by a nice lunch to chat about old times.

Third Party Audit

Many of these problems can be overcome by having your quality system audited by a neutral third party through a process of impartial verification, carried out to a known minimum standard.

Third party certification bodies are companies that provide such independent and impartial certification services on a commercial basis. They work within a regulated industry framework. The Joint Accreditation System of Australia and New Zealand (JAS-ANZ) has been established by treaty between the two countries to accredit such bodies.⁽¹⁾ Other countries have similar bodies: for example the UKAS in the United Kingdom and the ANSI RAB in the United States.

The process whereby JAS-ANZ accredits certification bodies is similar to the certification process itself and covers the following aspects:

- Auditing their management system to determine whether it complies with internationally accepted standards;

- Making sure they use people who are competent to act as professional auditors;
- Ensuring that any audit team has a sufficient understanding of the industries to which they will be assigned to conduct certification audits. This is an important requirement, as the audit team must understand the technical environment in which it is working and, in particular, must have an understanding of any regulatory and other legal requirements relevant to the industry and hence to its quality systems.

During the accreditation audit, as well as during subsequent regular surveillance audits, JAS-ANZ also makes an independent judgement on the competence of a certification body's auditors. This is done by actually witnessing auditors in the act of conducting certification and surveillance audits.

Accreditation is an independent evaluation of the competence of the certification body to conduct their work at an adequate level of rigour, and also confirms the industry sectors within which the company is accredited to work. Note that accreditation is voluntary, and not all organisations offering independent certification services seek accreditation by JAS-ANZ. Although accreditation can never provide complete assurance of a certification body's competence, it is an independent audit. There are therefore some safeguards if you use an accredited body whose scope of accreditation covers your particular industry sector.

The Quality Society of Australasia (QSA) holds the franchise in Australia to certify the competence of individuals to perform as auditors⁽²⁾. This certification function has also been accredited by JAS-ANZ.

The JAS-ANZ accreditation of QSA covers the following two levels:

- Auditors, who have verified competence to audit organisation's quality systems, or act as a member of a team for third party certification;
- Senior Auditors, who have verified competence to manage a full quality system audit and to lead an audit team in any situation.

The certification of auditors is based on an internationally agreed standard covering a combination of experience in both a technical discipline and in quality, successful completion of approved auditor training programs, and defined levels of auditing experience. The QSA also certifies Internal Auditors, who have verified competence to audit within their own organisations, although this program is not JAS-ANZ endorsed.

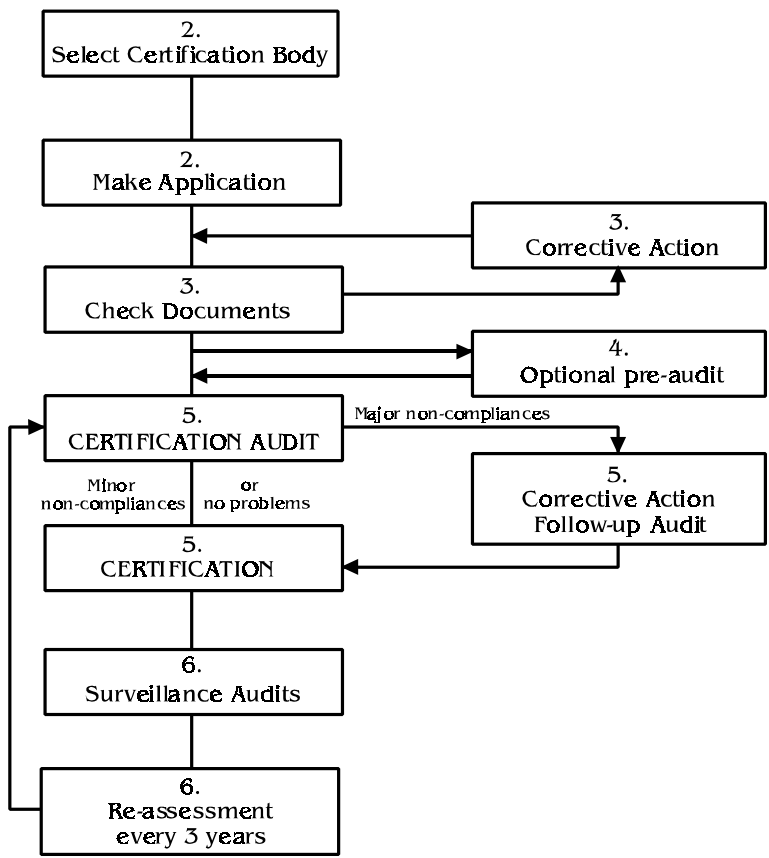
The Certification Process

The conduct of a third-party audit by an accredited certification body, culminating in the awarding of a certificate attesting compliance of a quality system to ISO 9001, is called ‘certification’. (In the USA it is referred to as ‘registration’, by a ‘registrar’). Note that it is NOT called ‘accreditation’.

The process is not as simple as just making a call to someone and having it done. It normally follows a series of stages:

- 1. Deciding if you need quality certification at all;
- 2. Selection of an appropriate certification body;
- 3. Review of documentation;
- 4. Pre-audit check;
- 5. The actual audit;
- 6. Post-audit surveillance and re-certification.

The diagram below illustrates this process from stage 2 onwards:



Do you need Quality Certification?

Carried out properly and positively, quality certification can be a ‘finishing-off’ process to the first establishment of a quality system, and there are lots of good reasons to do it. On the other hand, not all organisations need it, and it can be argued that too many have acquired it on a ‘me too’ basis without really working out what the benefits are for them. Don’t misinterpret us: we believe that good systems are important. However, we believe that if you have a good quality system, certification doesn’t always add very much value, is fundamentally a marketing-related issue, and has to be regarded as a separate issue to that of standardisation.

So, when quality certification is considered as a product that can be acquired and is separate from the system itself, the circumstances when it can be of value can be identified. Broadly, these amount to situations where you need to provide some external evidence that your system has the necessary integrity to meet Customer needs, although there are occasionally internal reasons too. Factors in a decision to obtain certification could include:

- Geographically remote Customers may be given more confidence that you focus your processes on their satisfaction, as demonstrated by your quality certification;
- Commercially remote Customers, as in a tender situation, may not permit you to directly make them aware of your capabilities and competence. Certification may help demonstrate this;

Yes, No, Maybe

It was a large and progressive company. They held quality certification but, unfortunately, via a particularly aggressive auditor.

As part of a strategic review, each manager was asked:

1. Does this company need certification for any reason?
2. Do you need the company to have certification for the outcomes you have to achieve?

The responses were unanimously ‘YES’ and ‘NO’ respectively. Within a week of receiving the report, they cancelled their quality certification!

- In a crowded market, having quality certification may help differentiate you from the rest, provided it is accompanied by sensible marketing strategies;
- There may be a market expectation that all participants in a market will be certified. Not to be quality certified may reflect negatively on your organisation. (We encourage a thorough check on such perceived expectations, as in our experience, they are not always real);
- There may be regulatory reasons to obtain quality certification, such as for design verification of high-hazard level pressure vessels, or for power stations to enable them to extend the periods between shutdowns;
- Your Customers may demand quality certification as a condition of the business relationship. This is generally linked to consumer-critical products, such as clothing and passenger vehicles, for which quality is a strategic imperative, where production margins are slim, and the consequences of mistakes can be enormously damaging to the brand.
- Sometimes, quality certification can be a tangible goal for the organisation, to show achievement in some strategically significant development. It may be retained for a suitable period of time, and dispensed with later as you move on to higher goals, or retained if there is sufficient value in the service.

In all these reasons, it is important to again emphasise the difference between a system and certification: a management system is an essential risk management approach and central to effective due diligence. Quality certification is often optional, and generally a component of the product positioning market mix. Good business practice demands that all decisions, in this case both for having a quality management system, and for obtaining an external certification, must be strategically driven. It will soon become obvious if they are not.

"I believe that great care should be taken by those in a position to control the direction taken in Australia with regard to the meaningfulness of the term 'certification', lest it become just another sales gimmick that eventually will lose all credibility and become another wasteful, expensive and useless exercise"

Arthur Tompson⁽³⁾

Selecting a Certification Body

The first step in the certification process is to make initial contact with one or more (we suggest the latter) of the certification bodies. A list of accredited companies is available from JAS-ANZ.

Usually there is no need to put this in motion until you are well down the track with the preparation of your procedures. When you are ready, we recommend that you undertake a rigorous interview process with the Certification bodies with which you decide to make contact.

The way you approach the interview process is important too. Many organisations feel intimidated by the ‘experts’ who come to check them out. Don’t forget that you are the Customer, and the certification body is there to provide you with a service. We know of one large organisation whose approach was to find an certification body that measured up to its own high standards and which could be considered good enough to be allowed to work with them. To screen certification bodies properly, and ensure there is a good ‘fit’ to your needs, it is best to determine your outcome expectations from the service. Do you simply want a certificate with the least disruption? Do you want to be challenged? Do you want the auditor to locate risk areas in the business, to which you may have become ‘shop-blind’?

A useful initial strategy is to evaluate their attitude to the audit process and how they perceive their relationship with you as a client. You may be surprised: our experience includes beauties like *“Don’t worry - we’ll get you through”*, *“Do what I tell you and you’ll be right”*, and *“We regard audit as a confrontation”*. We actually heard the first one; the other two were told to us by clients.

It is a good idea to have a list of questions. Starting on the next page is a selection of things you might ask. If you are so inclined, you could weight your questions according to their importance to you, and score the answers. You can then develop an overall score to make a comparative rating.

“Arguing with your auditor is like wresting with a pig. The more you do it, the more you come to realise how much the pig enjoys it!”

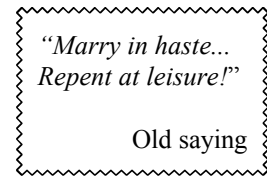
Anonymous auditor

Hmmmm....

Questions you might ask in selecting a certification body

- Tell me about your accreditation with JAS-ANZ or other national bodies.
- What is the scope of your accreditation? What industry sectors does it cover?
- How do you see your role, and what are your objectives in working with us?
- How would you describe your service? How is it different from anyone else's?
- What value will you add to our organisation?
- Explain the audit process to us.
- What would prevent our gaining certification?
- What if we disagree with your audit? Do you have a process for handling disagreements?
- Show us your procedures.
- How do you define non-compliances? Show us where this is explained in your system.
- How do you handle complaints about the process or about the auditor's performance or behaviour? Show us the relevant section of your procedures. *(Note that accredited certification bodies are required to maintain an effective complaints process).*
- If we feel we have made a mistake and choose to change certification bodies, what is the process for:
 - dissociating from you to link with another;
 - coming to you from another company?
- Explain and justify your fees. Do we have to pay in advance, or is it a fee-for-service approach?
- Do you provide an annual, or longer, visit program, setting out when you will come to review the system and what you will be looking at?

- How frequently will you visit us to do regular surveillance checks? If our system has good integrity, will you extend the period, and is there a price benefit to us?
- Who will our auditor(s) be? What is their experience in our product or service? Show me a complete list of organisations they have assessed. Do you have any objections to our contacting any of these for reference purposes?
- What are your processes for the training and professional development of your auditors? Can you show us evidence of this for the auditors you would assign to us?
- What if we don't get along with a particular auditor?
- How do you ensure consistency in the competence of work between all your auditors?
- What is the staff turnover amongst your auditors? (*If high, ask Why?*)
- Do you assign an auditor to us on an ongoing basis, or do we have to re-familiarise with someone new at various times? (*Bearing in mind that the latter will waste time and could therefore reduce the standard of work and your value-for-money*).
- How can you ensure that all of the commitments and promises you've made today will really happen? What is the communication process?
- We will want regular feedback during the audit from you; is that a problem? (*Unbelievably, some certification bodies' procedures permit them to tell you nothing during the process. Jeff has seen this display of arrogance and poor service at first hand*).



The various certification bodies have tried to differentiate themselves over recent years. Some emphasise their international recognition; others have developed niche-marketing positions; a few have developed excellent brand management strategies. Your choice of 'brand' may seem important, but our experience is that it is rarely a differentiating issue. The JAS-ANZ endorsement is designed to be the real differentiating factor.

It may be hard to believe, but we know of several organisations which have selected their certification body on the basis of the logo on offer! It's like buying a bottle of wine because it has a pretty label, except that it's a lot more expensive and potentially damaging, and usually not as pleasant!

An important aspect that should be considered is pricing structure and total price. This is not easy - it's a bit like choosing your mobile phone company or Internet service provider. When you seek quotes, you will be faced with various imaginative pricing regimes, ranging from 'site fees' that are apparently unlinked to service provision, through all-up inclusive costs per annum, to fee-for-service approaches, and small business schemes that are designed to reduce costs. When these are analysed, you will find wide variations in total costs. For example:

- A small company obtained two quotations, one from a brand leader, and one from a niche company. The former quote was three times that of the latter;
- Another microbusiness obtained quotations from a range of certification bodies. They asked for costs up to certification, and also out to 3 and 5 years. While the costs to certification were similar, they started to diverge after a few years, and the most expensive were twice the long-term cost of the least expensive.

However, the brand you choose is only part of the choice option. Regardless of the brand, you will have to work with the auditor who is allocated to provide the service to you. We always recommend that you select the auditor, even if that defines the choice of certification body. The vast majority of complaints we have heard (and we have heard plenty!) relate to problems with auditors (about 80%). The other two most common complaints relate to invoicing glitches and failure to conduct programmed surveillance audits (about 10% each).

Dissatisfaction with auditors arises for a variety of reasons: poor interpersonal skills, rudeness, patronising comments, aggressive behaviours, ineptitude, laziness, nit-picking, and, in one case we were told of, the bored overworked auditor actually falling asleep on the job! Some organisations we know have banned certain auditors from their premises, or have arranged for replacements. However, this should not be necessary (certainly if the accreditation system worked properly!).

There are excellent auditors who can provide real value for you. Some work independently and have contracts with more than one certification body, enhancing your ability to choose both auditor and brand. We suggest you identify a suitable auditor for your business, and insist that you develop a long-term relationship, rather than just accept whoever is sent. Keep in mind, too, that as described in Chapter 8, auditing to ISO 9001:2000 requires a sound understanding of strategic management. To add value and to audit

properly, an auditor's résumé will increasingly need to show both management education, such as an M.B.A. and management experience, regardless of the company they audit.

We agree with Phil Wilton when he says: *"Companies should choose their consultant with the same care as they would select a supplier or a new employee"*.⁽⁴⁾

When you have finally decided on the certification body with which you will establish a relationship, you make formal application for certification and (usually) pay a fee.

The Preliminaries

The first step of the audit itself is a review of the documentation. Remember that your documentation normally needs to cover all of the processes that affect your ability to satisfy Customers and incorporate all the relevant requirements of ISO 9001.

The review checks all of this and also serves as a getting-to-know-you activity. If there are any obvious problems, such as undocumented processes, or unaddressed aspects of the standard, they can be identified so that you can fix them before the audit proper. This saves time, money and embarrassment later. Normally, the quality manual is reviewed and approved also at this stage.

Following this, an optional pre-audit could be carried out. This is an informal audit to check that the implementation is progressing satisfactorily, that there are no undocumented processes or control gaps, and to familiarise your people with the audit process.

This is not a consulting visit, in the sense that you will be given advice (the auditors are actually not allowed to do that). Nevertheless, the auditors are meant to be helpful, communicative, and project a positive approach. We would regard any sign of negativism or unhelpfulness as a problem and justification for complaint to the certification body. It is our experience that if perceived attitude problems are not addressed at this stage, they are likely to get worse rather than better.

The four 'B's for Certification Auditors:

- *Be thorough*
- *Be fair*
- *Be friendly*
- *Be gone*

The Certification Audit

The audit proper can take anything from one to two days for a small company of up to about twenty people, to in excess of eight days for a large company with several hundred people. The time will also vary with the complexity and variety of processes and products.

The audit will be planned so that you can organise yourself around it. You need to work with the auditors to look at the system together in a positive and co-operative atmosphere. Of course this will be much easier if you have approached the process as a verification of all the good work you've been doing, rather than as a rush to get a certificate on the wall.

Broadly, auditors will seek to verify the following⁽⁵⁾:

- There is an adequately-documented system, in which it is clear where the authorities and responsibilities lie;
- People in the system know, understand and work in accordance to the documents that apply to them;
- The system complies with ISO 9001, as well as any other codes, regulations or standards that are applicable;
- The people, equipment, facilities and general resources are adequate;
- The system operates effectively to identify and meet Customer requirements;
- The system is validated through Customer satisfaction, and is being self-managed to continually improve.

The last two points are particularly important, yet are sometimes overlooked. It can happen that everything looks OK - the system is in place and the people can explain what they do and how that matches the system's requirements. But when samples of the product are checked, they are found not to comply with the specifications agreed with the Customers. Red faces and shuffling of feet! Customers have an entirely reasonable expectation that outputs of certified quality systems at least match the agreed specifications, and it is also a reasonable expectation that the certification body is thorough enough to confirm that. Fortunately, this is less of a problem now than it used to be in the early 1990's.

If the auditor is unable to find evidence to verify the integrity of the system, he or she will provide you with feedback in the form of a report, so you know exactly what the difficulties are. These problems are variously called ‘non-conformances’, ‘hold points’, ‘major non-compliances’, etc.

Do not hesitate to challenge and debate these if you think the auditor has made a mistake, or if you think they are unfairly graded. It is not unknown for clients to meekly accept incorrect findings, even when they are confident about their opinion, in the belief that making a fuss might jeopardise the outcome of the audit, or the future relationship with the auditor. If you have chosen your certification body wisely, and they work with you on a partnership basis, this will never be an issue. Auditors have a code of conduct to work to, are expected to be professional, and will have processes to deal with such situations. If they react badly, it is a signal of some fundamental problems in their professionalism, competence or Customer focus.

If it is not possible to give the system the OK at the initial audit, a follow-up visit is necessary. This is normally done within three months of the first audit, and involves verifying that any major problems that were identified are now corrected. Sometimes it is necessary to re-audit whole areas of the organisation if widespread problems have been found, or if there were aspects of the system not properly implemented. The auditor will always discuss such situations with you in advance.

The Certification

When all major problems have been fixed, you are rewarded with certification. As all organisations are in a constant state of change, correction and improvement, it is permissible to be still working on an ongoing basis on minor problems (except for QS-9000 systems, which must be perfect at this stage), as long as they don’t impact the integrity of the product as perceived by your Customer.

At this point you are free to tell the world that you have certification to the appropriate standard. The certification bodies can provide you with artwork of their logo and the guidelines for its use. We suggest you think carefully before adorning your stationery, packaging, commercial vehicles, etc with it. If at some stage in the future you want to make a business decision to change certification bodies, you don’t want the cost of removing all those logos to be a disincentive. We know of one large manufacturer who faces a cost of over \$5 million to change to a more satisfactory certification body - the cost of removing the logo from all of their stationery and product samples in stores.

Sword of Damocles

In some situations it is only the prospect of the coming audit that galvanises people into action: The Technical Manager of a plastics company once told Jeff:

“Until you put the impending axe of an audit above peoples’ heads they don’t react.”

Of course, this kind of thinking has been around for a long time. For instance, on 19 September 1777, Dr Samuel Johnson noted:

“Depend upon it, Sir, when a man knows he is to be hanged in a fortnight, it concentrates his mind wonderfully.”

Following certification, the auditor will visit you every six to twelve months for a day or so to carry out a ‘health check’ of the system, to ensure its integrity is being maintained. The full audit cycle is repeated each three years.

Ups and Downs of Certification

As we have indicated, the issue of certification is sometimes questioned, and we believe we have dealt fairly with this in the foregoing. The actual process of certification is also questioned from time to time. One common point of contention relates to the competence of the process itself. There are many accounts of auditors and clients working together on successful implementations. Unfortunately, there are also many ‘war stories’ of auditors failing to provide the service promised (sometimes paid for in advance!), and of unacceptable variation in the competence with which the work was done. If problems of incompetence or unacceptable operating methods arise, the first step is, of course, to try to resolve the problem directly with the auditing company in question. If this fails, and the firm you are using is JAS-ANZ accredited, you do have recourse to the QSA (for auditor issues) and JAS-ANZ. It is part of their accreditation responsibilities to deal with complaints registered against certification bodies which it has accredited. However, it seems that in practice this process is rarely activated, and in the context of the extent of dissatisfaction one hears about, it may be valid to ask whether the various processes do in fact work effectively. After all, if the means of validating the clients’ systems is feedback from valid and reliable Customer satisfaction instruments, should not the same test apply to the controlling bodies?

Yet another problem, and one that has aroused considerable debate, is the demand of some Customers that their suppliers must have certification before they'll do business with them. The Queensland and Western Australian Government purchasing policies were well-known examples that led this push in the late 1980's and early 90's, and this policy is also being enforced by many of the larger companies, for example in the automotive and textiles sectors. This can place heavy burdens on small companies. Sometimes these Customers don't have certification themselves, and they don't see that as an issue - "Don't do as I do, do as I say"!

Paradox

What is your opinion of a company in which:

- *there are no procedures at all in the engineering drawing office;*
- *the purchasing officer has never seen the procedure for purchasing;*
- *no internal audits have ever been done;*
- *there is no training system;*
- *there is no system to control Customer-supplied goods, even though processing Customer-supplied goods is the mainstream of the business.*

*Ripe for the implementation of a quality system, would you say? Admittedly, not all these occurred in the one organisation, **but each one of them has been observed in a company which had ISO 9001 certification at the time!***

We first included this item in our original book in 1994, and thought of removing it for this new version. Regrettably, it is still current.

Perhaps a more unexpected problem we have observed is that of certified companies bringing down a wall of secrecy on the basis that they are certified and therefore shouldn't have to show the Customers anything.

The process involved in Certification offers the potential for the certification body auditor to create power imbalances in the relationship between themselves and the organisation under audit. Obviously it is possible to avoid having anything to do with the unpleasant, unprofessional and unethical aspects to which the certification process leaves itself open. You can take your organisation through the certification process in a mature and responsible way, at your own pace, emphasising process thinking, systems management and Customer service. You can ensure certification has meaning in the context of your larger view of quality, and commit to making the process work, in your own organisation, as well as in those of your

"There are no facts, only interpretations."

F Nietzsche

Customers and suppliers. Invariably, organisations who take this approach find the experience rewarding, and less and less stressful over time.

Alternatives to Certification

Another option is 'self-certification', which is discussed at some length in the April 1994 issue of the US journal 'Quality Digest'⁽⁶⁾. This approach was proposed in the mid-1990's, in response to the perceived problems and lack of value in formal certification products. In this approach, the organisation retains the services of an independent senior auditor (i.e. somebody with the same qualifications as a lead auditor of a certification body) to provide the external appraisal of the quality system. This often leads to a more open relationship, and to audits focussed on effectiveness and constructive questioning of the status quo. A big advantage is that the auditor is not constrained from going further and consulting with you to fix problems and improve the system. (Certification bodies cannot act as consultants. In other words, they can only tell you whether or not your system works; they can't talk about its degree of 'goodness', nor give advice for improvement).

This approach could be less expensive, and even if it isn't, it can represent better value for money. To be credible to Customers, it must be open to their observation and continued over the long term.

The Future

Further Development of Standards

So, what does the future hold for standards and certification? Some people believe the whole concept has reached its 'use-by' date. These are in the minority, and ISO 9000 will be further developed and will increasingly adopt a holistic approach to quality. Certification growth has slowed in Australia, and is now a mature product. There are high 'churn rates', both in terms of discontinuance of certification status by choice, and transfer to alternative certification bodies who can provide a better deal or better service. The Australian certification industry is increasingly seeking to grow organically by expansion into Asian markets where there is significant growth and huge potential.

Attempts at Certification Product Extension

As the certification bodies have become aware of the limitations of their product, they have sought to enhance its market position and value. One emerging extension has been the so-called “value added audit”. In this approach, the auditor goes beyond the strict scope of the audit, and offers advice to the client on areas of improvement they should consider and act on. While this sounds fine, in practice it is not always well-received or valued, for various reasons:

- Audits are by their nature sampling exercises, in which evidence is sought on which to make a judgement about the system. Your ability to do it gets better after a few visits, but it is always incomplete and subject to error;
- Not all clients want this. Often they would prefer the auditor to do their core job well, and go, leaving the organisation itself to explore their processes in more depth, privately. Almost exclusively, on the basis of our research, organisations don’t want auditors probing outside their scope. It all comes back to the lessons of Quality 101: find out what you Customer actually wants first, before guessing and giving them what you think they need, or ‘should’ want. We know of one excellent organisation who asked for a replacement auditor from their certification body, after inappropriate probing and recommendations created internal dissatisfaction;
- Most auditors do not have the personal capability to do this. Some certification auditors have a very narrow understanding of quality, restricted to ‘old style’ system compliance and basic audit technique. Most have limited business experience at management level and/or a lack of formal business training.

“We’ve got to stop telling people they must go for certification systematically, that they must have an ISO 9000 Certificate. All those tools are just tools. But people think of them as an end in themselves.”

Jacques McMillan ⁽⁷⁾

Integration of Management Systems

ISO 14000, for the management of environmental management systems, is also well-accepted. This uptake is being driven by other forces, such as:

- The need to meet regulatory requirements;
- Customer requirements (as in the automotive industry);
- Requirements to demonstrate due diligence;
- In some cases, the need to demonstrate to watching communities the organisation's responsible handling of waste products and unintended process outcomes.

The priority of organisations to efficiently handle multiple systems (quality safety, environment etc.) will create a blending where integrated management systems, audits and certifications will become more prevalent.

In the short term, we believe that it is unlikely that certification will diminish. In the longer term however, the thrust will be towards the 'big picture' view of quality as embodied in Business Excellence Frameworks and possible future versions of the ISO standard.

The changing Role of the Quality Practitioner

As quality becomes more integrated into the fabric of organisational activity, a diversity of role types for the formerly fairly uniform role of quality practitioner is emerging. In our view, the role that develops depends on the strategic nature of quality within the business.

In some organisations quality is important, but it does not stand out as a major issue. It needs to be managed within the business itself, along with everything else. Some people describe this as the absorption of quality into the business, so that quality ceases to exist as a separate entity. In this scenario, the role of the specialist quality practitioner can be redundant. It may not be big enough to demand a specific resource allocation, and is consequently integrated into the line management functions and accountabilities. Basic system management may be distributed to appropriate functions within the organisation.

On the other hand, for other organisations product quality is a strategic imperative, and because of Customer demands, often in concert with the need for high service levels and cost (= waste) control, there must be special emphasis on its management. We often see the specialist quality practitioner operating in industries such as clothing and textiles, food, automotive, pharmaceuticals and construction.

Beyond this, we also identify a new role, which encompasses the diversity and depth of process management we have described up to this point. It is a role concerned with co-ordination of all processes to achieve outcomes which satisfy not only Customers, but other stakeholders as well. A role that ensures compliance issues are managed properly and that engages with the organisation at all levels, to ensure full integration of quality activities with the business. In this role the 'big' picture, in both strategic and quality terms is constantly pursued. The last part of this book is about that big picture.

For your interest and amusement, we have garnered, from a number of newspaper advertisements, a composite description of the new Quality Practitioner role, as we see it emerging:

QUALITY PRACTITIONER

Quality/Auditing Qualified

OHSE Experience Essential

Focus on Process, Systems, Results

You are a dynamic, results-driven professional, who supports the commitment to continual improvement and cultural change programs. You are able to identify gaps and opportunities, and focus on organisational needs and objectives in the areas of occupational health, safety, environmental management and quality, and the associated compliance programs.

You are qualified in quality, with training in OHS and environmental management. You are likely to have formal business training and experience at management level.

As an experienced and qualified auditor, you can evaluate the integrity of processes to achieve sustainable outcomes.

You have strong interpersonal skills and a team orientation. While a detailed 'hands-on' approach is essential, the 'big picture' vision must be the target. You are able to demonstrate the tenacity and energy to work in a fast-paced and challenging environment, and be motivated to achieve results through others by influencing change.

You will liaise closely with Customers, industry and other stakeholder groups, to ensure that their voice is heard within the organisation, and to achieve positive and value-adding outcomes for all interested parties.

Increasing Excellence

There were signs of concern a few years ago, particularly from Europe, that the focus on certification caused people to take their eye off the quality ball, and that this needed to be corrected. It was pointed out that ISO 9001 was originally written as a two-party document and that certification appeared as an add-on product. In many cases certification has been seen as an end in itself. What is needed is to shift the focus to the process of standardisation as the key issue and that this, in turn, forms part of a much larger view of quality. In his Editorial Comment in *Quality Progress* of August 1994, Brad Stratton describes the new emphasis on the broader integrative approach that is emerging, based on the requirements of national quality awards criteria.⁽⁸⁾

While this has some impact, perhaps the picture of the future lies elsewhere, and may be symbolised by the following snippet of conversation. The scene is a startup metals refining facility, staffed by top-notch people, with export contracts in place, which had just passed their certification audit without one corrective finding, minor or major.

“I suppose”, said the Plant Manager, “that the standard they expect will continue to rise progressively.”

“What is more likely”, we replied, “is that you will progressively improve so that the requirements of ISO 9001, and certification, blend back into your overall infrastructure. It will become simply one of the many things you do well.”

In fields as diverse as food, petrochemicals and metals, we know a number of large (typically global) organisations who drive this development through their own excellence models. They interpret the intent of ISO 9001 (and often ISO 9004) into a model that contextualises their own operational and strategic focus. These models go well beyond the basic requirements of certification and are aimed at creating world-competitive excellent businesses.

Here's your 'Q'

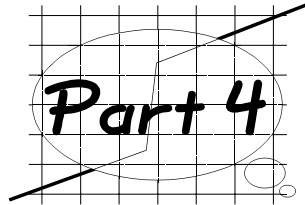
Management guru Peter Drucker said: *“The best way to predict the future is to create it”*. If you set your sights on big picture Quality (‘Quality with a capital Q’), as part of this focus on a sound Quality Management System, and seek certification for sensible business reasons and as a demonstration that you conform to certain agreed minimum requirements, then you will reap the benefits and you will be part of creating the future.

Chapter 18 - Key Points

- Certification is about a third-party audit, ie an audit of the quality system against the requirements of ISO 9001 by an independent external auditor;
- Certification bodies may or may not seek accreditation with JAS-ANZ;
- The certifying body for individual auditors is the Quality Society of Australasia (QSA);
- Step 1 in the certification process is to decide whether you have strategic reasons for wanting it;
- Selection of auditors and an appropriate certifying company is a critically important step;
- Choose them as you would a new supplier or new employee;
- The relationship with the certification body and its auditor(s) should be positive and value-adding;
- On achieving certification, be careful with the use of the certifying company's logo, as you may want to change at some stage;
- The complaints handling processes to accreditation bodies (QSA and JAS-ANZ) don't seem to be working very well - best avoid the need for them in the first place;
- Auditors are not permitted to act as consultants, except when they are freelance advisors, retained by you for the purpose;
- In any case, many auditors currently lack the background to act as competent high-level business advisors;
- Future moves will be to a more all-encompassing view of quality, as embodied in ISO 9004 and Business Excellence Frameworks; There will also be increasing integration with other management systems (eg ISO 14000);
- Certification can be a worthwhile adjunct to standardisation if you have sound strategic reasons and can identify and demonstrate the benefits.



1. JAS-ANZ may be contacted at **<http://www.jas-anz.com.au>**
2. Quality Society of Australasia (QSA) **<http://www.qsanet.com/>**
3. Quoted in '*Small Business Perspective*' by Matthew Eton
Quality Australia, Feb/Mar 1994.
4. '*The right Route*', by Phil Wilton
The NIES Magazine, Oct/Nov 1993
Reprinted in Quality Australia, Feb/Mar 1994.
5. This section is based in part on a paper presented by Ted Fletcher:
'*Quality System Accreditation by Third Parties*'
Proceedings of Qualcon 88, Sydney 10-12 August 1988
It has been updated to reflect developments over the years, but the
core approach is still valid.
6. Bruce M Kennedy:
Is Certifying Your ISO 9000 System Really Necessary?
Quality Digest, April 1994.
7. Comment by Jacques McMillan of the European Commission's
Directorate General III for Industry; quoted by Brad Stratton in the
article referenced in Note 8 below.
8. Brad Stratton:
Editorial Comment '*Goodbye ISO 9000; Welcome back, Baldrige
Award*'
Quality Progress, August 1994.



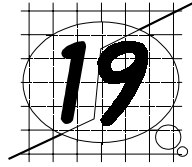
The Big Picture

"He that would run his company on visible figures alone will in time have neither company nor figures. The most important figures that one needs for management are unknown or unknowable."

W Edwards Deming

"If you've always done it that way, it's probably wrong."

Charles Kettering



Continual Improvement

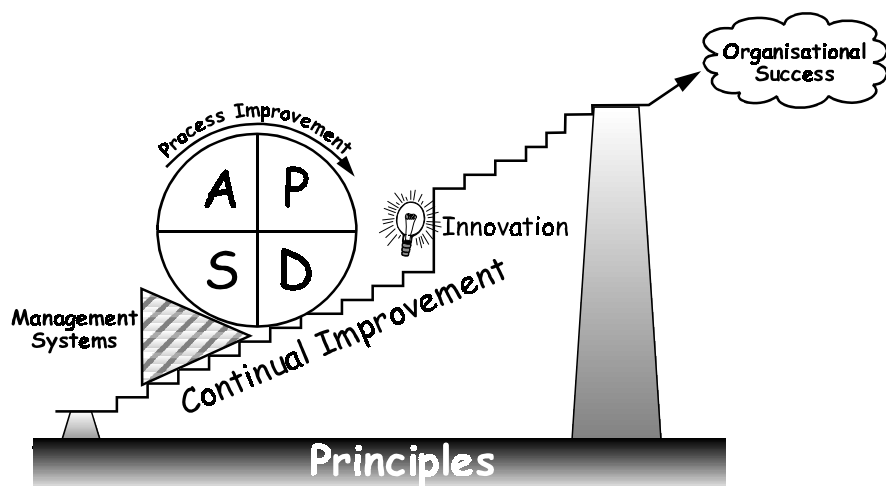
*"I find the great thing in this world is not so much where we stand,
as in what direction we are moving."*

Goethe

So far in this book we have talked mainly about quality management systems. We have indicated their importance and indicated that there are advantages in using an internationally accepted standard as a model. We have described this model in detail, and we have talked about the ins and outs of certification.

We have also indicated several times that there is a lot more to quality than having a good quality management system; that the quality management system is only a component in 'the big picture', in the larger quality framework, in Quality with a capital 'Q'. We elaborated on this in Part 2, when we talked about ISO 9004 and the eight principles. In the remaining four chapters of this book, we'll try to amplify this bigger picture even further for you. And to remind you that we are expanding our horizons, we'll write Quality with a capital 'Q' from now on.

In chapter 1, we talked about pushing a rock up a mountain. The time has now come to develop this metaphor further, beginning with the illustration over the page. It may look familiar to some of you: a model along similar lines was used in the NIES 'How to implement TQM' approach⁽¹⁾. We have added our own ideas, as well as a few 'borrowed' from friends and colleagues. Note also that this model is adaptable: we have used several variations on the theme in the course of our work - the one shown here is from "*Hidden Gold!*" by Jo Kruithof and Bill Jarrard.⁽²⁾



Let's look at the various components:

The ultimate aim of any business is to achieve Organisational Success. Each organisation has to define for itself what that means. What we do know is that it is a continuous uphill struggle. Organisational Success is a moving target: today's product or service improvement is tomorrow's minimum expectation!

Defining 'organisational success' and disseminating its interpretation throughout the organisation is very important. Without a definition of success, it is not really possible to define strategic objectives - as the old saying goes *"If you don't know where you're going, you'll probably finish up somewhere else"*. And without strategic objectives for the organisation and its various parts, you have no focus for continual improvement. Unless improvement efforts and activities are aligned with the enterprise's strategies, they will be sub-optimal or even counter-productive. We have a few more words to say on this in our final Chapter.

Back to the model. We can move up the slope in two ways: by the occasional innovative big step and, in between, by continuous small-step improvements. In explanations of Total Quality, much emphasis is placed on continuous step-wise improvement - and justly so. Nevertheless, we mustn't overlook the importance of innovation. For example, in the late-70's at Toyota in Japan, changing the die in an eight hundred-ton press took three hours. In 1985 it took only three minutes⁽³⁾. We've seen examples of this sort of thing ourselves. For instance, Jeff, as a Quality engineer, reduced the time to do a particular test from 60 days to 6 hours. You don't get those kinds of advancements from small-step improvements only!

It may be worth mentioning here that there is a current school of thought that 'TQM' or even 'Quality' has been and gone and that 'Innovation' is the big new development. We

believe that this is yet another case of focussing on one aspect of the big picture and presenting it as an alternative, rather than as a component. It happened with Process Re-engineering (see inset) and it happened with System Thinking. They've always been part of the deal, but tended to be put into the too-hard basket until they were re-discovered and presented as something new.

"If better is possible, then good is not good enough."

Peter Shirtcliffe

Back to the picture again: As mentioned, Continual Improvement has been shown as a combination of Innovation and continuous step-wise process improvement. The latter is illustrated by a wheel being pushed up the slope towards Organisational Success. The wheel itself has been presented as the famous PDSA (Plan-Do-Study-Act) cycle, also known as the continuous improvement cycle or learning cycle. We will have more to say about this in Chapter 22.

Some of you may know the story of Sisyphus, from Greek mythology. He was condemned forever to roll a large stone up a steep hill. Whenever he got near the top, the stone would roll down, and he had to start again from scratch.

Process Re-engineering

Before the latest focus on Innovation, 'Process re-engineering' was a term getting a lot of 'air play'. Often presented as different from Quality or 'beyond Quality', it's been around as an acknowledged technique for at least 30 years - except it used to be called things like 'breakthrough improvement', although in many cases the re-engineering wasn't particularly creative or innovative.

In any case, it is very much part of the Quality effort - not something separate or different.

At a Quality conference a few years ago, one speaker had this to say about process re-engineering done outside the Total Quality concept: "Re-engineering is for those who couldn't make TQM work ... 90 percent of re-engineering projects typically fail because the people side of the equation is

"As the wagon driver said when they came to a long, hard hill: "Them that's going on with us, get out and push. Them that ain't, get out of the way".

Robert Fulghum

So it is with innovation and process improvement: if you're not careful, your PDSA wheel will roll down and all the good you've worked so hard for will

be undone. If you've ever worked, especially as a manager, in an organisation that doesn't really want to change, you'll know how it feels! As we said in Chapter 1, what you need is a chock or a wedge, to stop this from happening. And this is where your Management Systems (and especially your Quality Management System) come in: they provide the structure and discipline to fix beneficial changes in place and make them permanent.

Now, you might well ask whether the concept of cementing things in place is at odds with the notion of continual improvement. The model clearly shows it is not: the moment you make further improvements, you need to shift the wedge. In other words, your standards and procedures, both in your Quality System and in any other relevant management systems, are continuously being updated. There is nothing static about any of this.

There is one more aspect which is of vital importance, yet often overlooked: the model as presented so far can only work in the proper environment.

Innovation only happens in an environment where innovation is not only encouraged, but where people know how to think creatively. If people are afraid of making mistakes, they are unlikely to explore ideas outside the present rules, whatever these are.

Continuous step-wise improvement of processes only happens when this is the work ethic of everyone in the organisation. This applies especially to senior management, who are expected to lead by example. This, in turn, requires a whole raft of concepts and practices not normally found in organisations managed by traditional methods.

Organisational Success can only be a meaningful goal in an environment where the concept of focussing on both internal and external Customers is thoroughly understood. And the need for sound, continuously updated Quality Management Systems is understood only in organisations which have a grasp of the larger Quality framework.

In other words, the model only works if it is supported by a sound, well-understood and deployed set of principles; by a culture where everyone thinks, works, talks and acts in ways which are, in many cases, radically different from the ways of the past. More on this in Chapter 22.

Pulling together

Although we emphasise the larger Quality framework wherever possible, the fact remains that this book is primarily about systems and standards. For the most part, these involve what we might call the ‘hard technologies’ of Quality. So we’d like to share another visual model with you, to further illustrate the all-encompassing nature of Quality and the need for balance in all our endeavours. It appears on the next page.

In developing this model, we have drawn on material and examples used previously by others. For instance, the idea of the “Soft S’s” and “Hard S’s” comes from Atkinson⁽⁵⁾.

The picture is what mathematicians would call a vector diagram. Some of you will be familiar with such a diagram. Others may vaguely recall something about calculating resultant forces.

Anyway, what it shows is two separate driving forces for Quality - one labelled ‘Hard Technologies’ and one labelled ‘Soft Technologies’. Each of these is valuable but, if used on its own, will not move us in the direction of Quality and Continual Improvement, represented by the target disc.

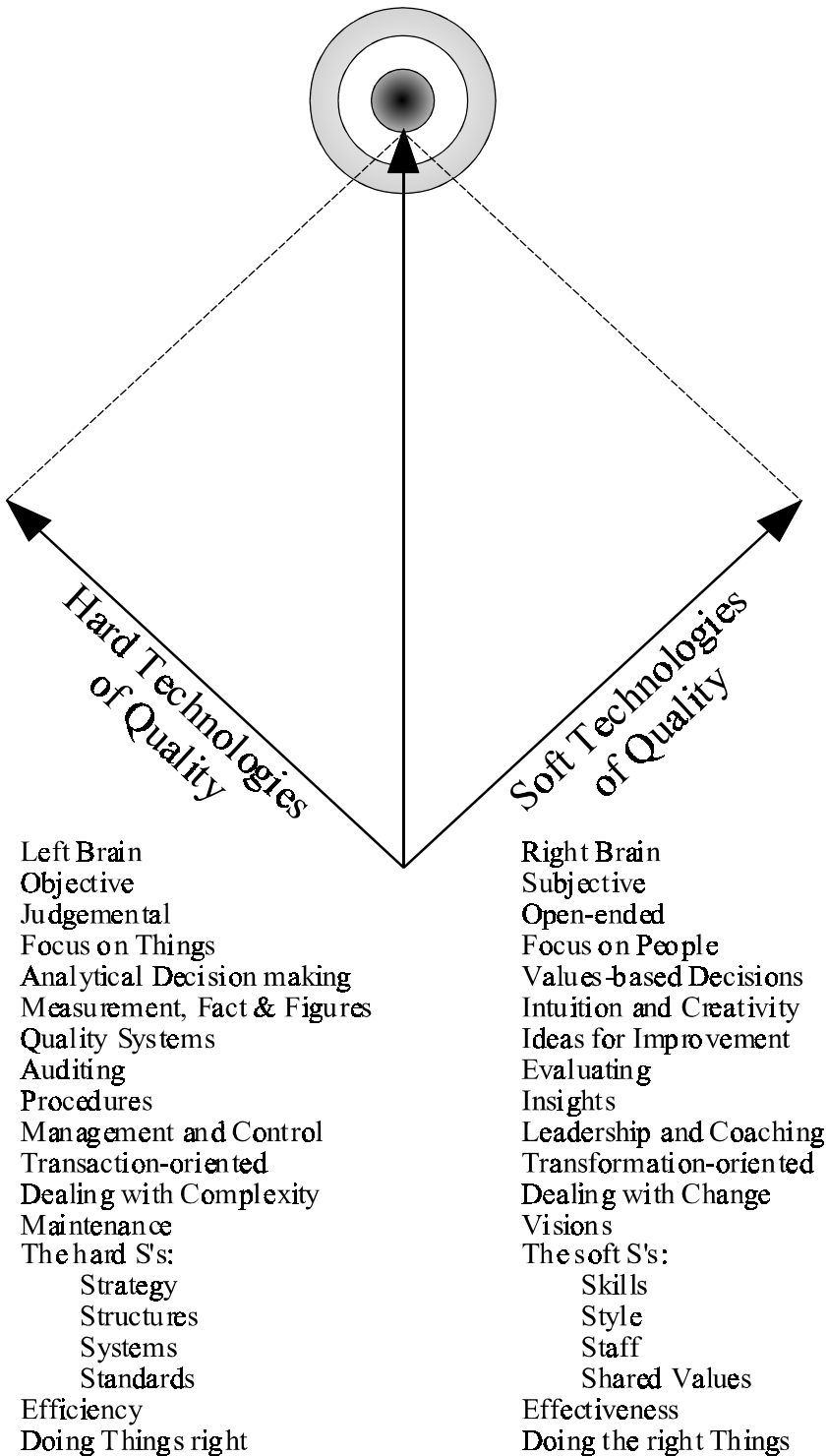
However, when combined in balanced proportion, the resultant force is not only stronger than either component, it also aims squarely at the target. We also know that this is a moving target, so to continue hitting it, we need to constantly work at maintaining the required balance between the forces, as well as continually increasing them.

We hope it is clear from this model that implementing Quality Systems represents only a part of only one side of the story. An organisation which doesn’t understand these forces will survive only if its competitors don’t understand them either. Organisations which are half-hearted about both forces, survive only because they are hard to kill for other reasons - many bureaucracies fall in this category.

Enterprises which are very good at the hard technologies, and which, for one reason or another, ignore the ‘soft’ side, may survive because of their sheer efficiency. However, you’ll find that most of their Customers only go there if they don’t have a real alternative. *“Cold as ice, and hard as nails”*, they’ll say; *“You might as well deal with a machine, but at least they deliver - as long as it is from the standard range”*.

Jeff knows of a CEO whose motto was *“We’re not here to make people feel good”*. In his organisation there was a strong emphasis on the hard

Quality and Continual Improvement



technologies, with very little development of the subjective side. The personnel structure was designed to reinforce this. Senior managers who didn't 'fit' were fired, or left of their own accord.

Not surprisingly, staff turnover was high. Morale was shaky, to put it mildly, and was held together by lower level managers who acted as 'filters' to the toxic culture.

"While hard data may inform the intellect, it is largely soft data that generates wisdom."

Henry Minzberg

Enterprises which are very good at the soft technologies, at the expense of the 'hard' side, also only survive if there is no viable alternative. Customers will tell you about how warm, friendly and full of ideas the people are. But they'll add a warning: *"It's a madhouse - by all means go and talk to them, but not when you're in hurry; and don't buy anything critical, because you won't get it on time, and it will probably be a different model."*

A Quality organisation not only focuses on the two technologies in balance. This also applies to their continual improvement efforts - it also strives continuously to do better at both.

In the diagram, various words and phrases are used to illustrate what we mean by Hard and Soft Technologies. We believe these to be largely self-explanatory, and don't think a lengthy discussion would add further value. Please study them, add a few thoughts of your own, and then draw your conclusions about how well-balanced your organisation is. In Chapter 21, we'll give you some further ideas on how to do this.

Chapter 19 - Key Points

- Continual Improvement is an indispensable component of 'Big Q' Quality;
- It includes Innovation and continuous process improvement and is underpinned by a solid set of principles;

"So many ISO 9000 programs stop when the company acquires the certificate on the wall. Many TQM programs start and finish with the setting up of improvement teams. In neither case does the company adopt a new management paradigm. To adopt a new approach to management means a change not only in the techniques we use, but in the basic behaviours and beliefs which we apply to the everyday running of our organisations"

Bryan Wenmoth, Executive Officer, NZOQ

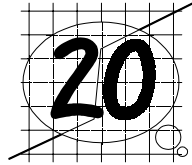
- It is supported by Management Systems, including a Quality Management System;
- A keyword in all approaches to managing for excellence is 'balance' - e.g. the balance between the soft and hard technologies of Quality.



1. *"NIES TQM 'How To' Approach - Guide to Concepts, Principles and Imperatives"*
Second Edition, 1993;
Ron Crosling & Bob Munzberg (Improvement Unlimited P/L)
2. *'Hidden Gold!'*
by Bill Jarrard and Johan Kruithof
QI Publishing Company, 1999, ISBN 0 9577601 1 6
3. There are many sources for these stories.
We came across this one in *'Continuous Improvement in Operations - A systematic Approach to Waste Reduction'*
Edited by Alan Robinson
Productivity Press, 1991, ISBN 0 915299 51 8
4. *'Syndicating Purpose and freeing Potential: The new Leadership Equation'*
Presented by Victor Rosansky at the Second International Conference of the Australian Quality Council, April 1994.
5. *'Creating Culture Change: The Key to successful Total Quality Management'*
Philip E Atkinson
IFS Ltd, Bedford UK - 1990, ISBN 1 85423 071 9

*"Vision without action is merely a dream.
Action without vision just passes the time.
Vision with action can change the world."*

Joel A Barker



Models of Business Excellence

“I’m easily satisfied with the very best”

Winston Churchill

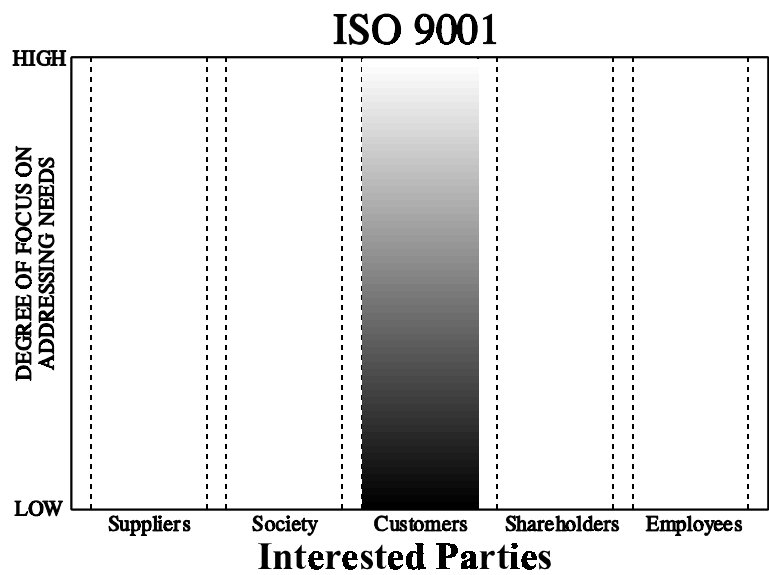
In chapter 11 we presented ISO 9004 as a holistic approach to Quality, as pursued by organisations that not only meet the auditable requirements of the standards, but implement the spirit of the standard as embodied in the eight principles. We also mentioned that, in the Quality stakes, a 9004 organisation would be well ahead of one that merely applies the letter of 9001, but would still have some way to go towards meeting the criteria of contemporary international models of business excellence, such as the Australian Business Excellence Framework (‘ABEF’) or the Baldrige Criteria for Performance Excellence (‘Baldrige’).

Or, to put it another way, ISO 9001 asks the question “Do your products satisfy your Customers?” ISO 9004 takes it a bit further, by prompting us to examine whether we are doing this efficiently, in a way that considers the needs of the business and everyone involved with it.

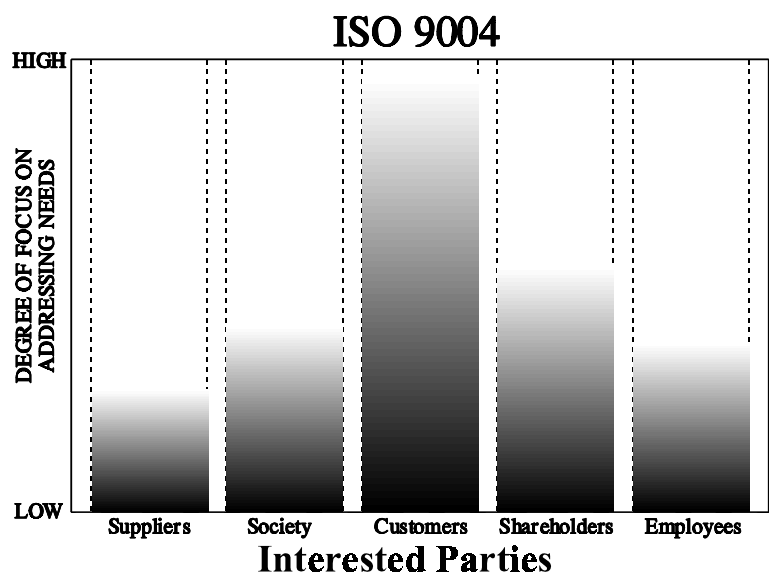
A Business Excellence model challenges us to consider why we take the approaches and initiatives we take, and what we learn from the way it all works.

The following three bar charts attempt to give some idea of how these three levels of business evaluation stack up in terms of addressing the needs of the five major stakeholder groups (also referred to as “Interested Parties” in ISO nomenclature).

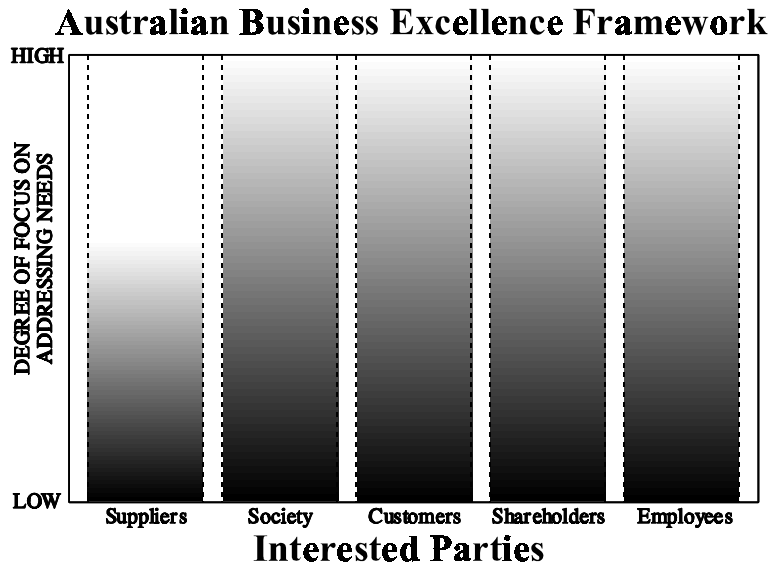
ISO 9001 focuses only on Customers, and in doing so seeks to achieve their confirmed satisfaction:



ISO 9004 has the same approach as ISO 9001 and seeks to extend the focus of the organisation to meet the needs of other interested parties as well. In doing this, the intent is to create benefits for Customers, other interested parties, and the business itself. However, a systems approach can only go so far:



An approach that takes us further still is embodied in the Australian Business Excellence Framework:



Business Excellence Models

Business Excellence models or frameworks have their origin in national Quality award schemes and have developed as follows:

- 1987 Start of Quality Awards Development - translating the Quality Management philosophy into sets of criteria, or 'Frameworks';
- 1988 Australian Quality Awards (AQA), Baldrige Awards, Irish Quality Awards, Deming Prize (a different concept) all developed independently;
- 1991 AQA modified significantly. Alignment sought between various models around the world;
- 1992 European Quality Awards introduced, similar to AQA and Baldrige, with several new initiatives;
- 1995} Reviews and revisions to create an even greater alignment
- 1996} between national models around the world;

*Promotion of the use of criteria/frameworks for
Organisational Self-assessment*

- 1998 Australian Quality Awards Criteria renamed ‘Australian Business Excellence Framework’. Similar name change for Baldrige model;
- 1999 Australian Quality Awards renamed ‘Australian Business Excellence Awards’;
- 2001 More than 70 countries around the world use Business Excellence Frameworks and associated Award processes.

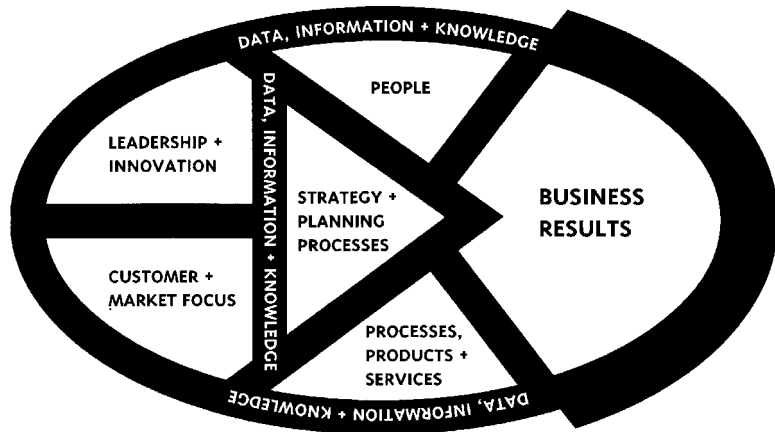
The two models most commonly used in Australia for external evaluation or self-assessment are the ABEF and the Baldrige (which is the national model in the USA). Naturally, many consider the ABEF as their first choice, as it is our national model and forms the core of the Australian Business Excellence Award system. Local knowledge and support are fairly readily available, although, for copyright reasons, distribution in print and on the web is limited. The Baldrige model tends to be used by a number of organisations with US parent companies, and by organisations that have no desire to apply for an Australian Award and find the copyright restrictions on ABEF material inconvenient (Baldrige material is in the public domain). A large amount of web- and print-based resources is available to support the Baldrige. New Zealand have adopted it as their national framework.

Both the ABEF and the Baldrige have two major purposes. One is as a set of evaluation criteria for a Business Excellence Award application, the other as an ideal model against which to benchmark the business. The latter application often takes the form of Organisational Self Assessment which is explained in more detail in the next chapter. To find out more about the Australian Business Excellence Awards, consult the reference at the end of the chapter⁽¹⁾.

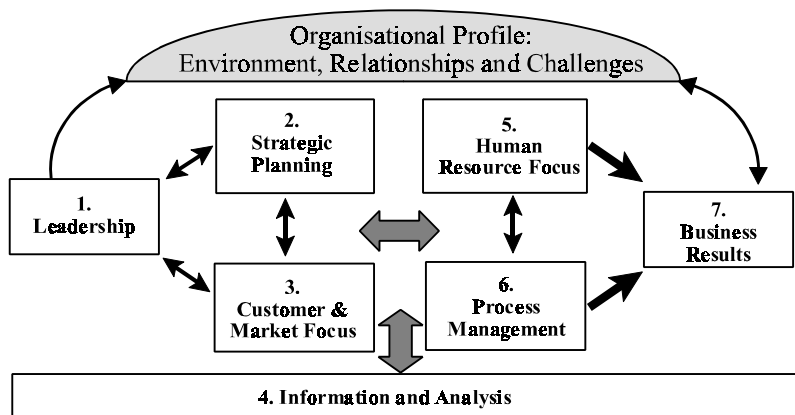
The conceptual pictures of the two frameworks are shown on the facing page. Both diagrams are on view on the world-wide web. However, the ABEF diagram is subject to copyright and is used here with permission from the AQC.

As can be seen, the two frameworks differ in detail, but are philosophically very similar - both consider the same seven critical components. In any business, there are a number of critical result areas and there are processes in place to achieve these. The first six components or categories of the frameworks can be thought of as defining the mechanisms and environments in which these processes can take place as effectively and efficiently as

ABEF - 2001



Baldrige - 2001



possible, with due regard for all interested parties. The seventh category (Business Results) examines whether all of this actually effects the achievement of the performance criteria associated with the enterprise's critical result areas.

Information on both frameworks is readily available^(1,2), so we'll confine ourselves here to a brief description of the Australian model. Copyrighted ABEF material is reproduced with permission from the AQC.

The Australian Business Excellence Framework

Principles

The ABEF is underpinned by a set of principles reflecting global contemporary thinking on Quality and Business Excellence. We showed these briefly in Chapter 7 in comparison with the eight ISO principles. Here they are again, this time in the form of their full headings (more detailed descriptions appear in the ABEF framework booklet⁽¹⁾):

- Clear direction allows organisational alignment and a focus on the achievement of goals;
- Mutually agreed plans translate organisational direction into action;
- Understanding what Customers value, now and in the future, influences organisational direction, strategy and action;
- To improve the outcome, improve the system and its associated processes;
- The potential of an organisation is realised through its people's enthusiasm, resourcefulness and participation;
- Continual improvement and innovation depend on continual learning;
- All people work in a system; outcomes are improved when people work on the system;
- Effective use of facts, data and knowledge leads to improved decisions;
- All systems and processes exhibit variability, which impacts on predictability and performance;
- Organisations provide value to the community through their actions to ensure a clean, safe, fair and prosperous society;
- Sustainability is determined by an organisation's ability to create and deliver value for all stakeholders;
- Senior leadership's constant role modelling of these principles, and their creation of a supportive environment to live these principles, are necessary for the organisation to reach its true potential.

The Seven Categories

The seven categories shown in the conceptual diagram on page 255 are further subdivided into sub-categories, called ‘items’. It is not our intention, nor would it be appropriate, to duplicate the ABEF booklet by spelling these out in detail. So, again, we’ll confine ourselves to a summary giving you some idea of the breadth of the framework, although we can’t really do justice to its depth in such a brief outline. The various item names are shown in *italics*. As always, we recommend you go the original source for more information and details⁽¹⁾.

Category 1: Leadership and Innovation

In essence, this Category explores how leaders implement the underlying principles. It does so in four separate items.

Firstly it looks at *Strategic Direction*, i.e. the systems and processes the organisation has in place to establish and disseminate its vision, mission, policies, values, goals, etc. It considers the way the enterprise prepares itself for sustainable success, how it determines its core business strategies, and, very importantly, how it ensures alignment to its vision, its purpose and its values across the whole organisation.

The next item is *Organisational Culture*. Its intent is to describe the systems and processes the organisation uses to develop a unique culture that supports behaviours consistent with its values and that encourage and enable the attainment of the enterprise’s purpose and objectives.

Leadership throughout the Organisation is about leadership awareness. Its intent is to describe how leadership concepts and management systems are developed and implemented at all levels, and how these support the vision and purpose, and the effective attainment of goals. Another aspect is a decision-making process that empowers, enables and trusts people to ensure that decisions are made at levels no higher than necessary.

Finally, *Environmental and Community Contribution* looks at leadership in the community. Its intent is not only to describe the way the organisation contributes to the community, but also how these contributions are aligned

“A Manager helps you climb the ladder of success;
the Leader makes sure the ladder is leaning against
the right wall.”

Stephen Covey

with the company's vision, mission and values. The impact of the enterprise's operations on the environment and on the community of which it is a part are also considered, as well as its impact on society at large.

Category 2: Strategy and Planning Process

This category deals with the way the organisation develops its business strategies and plans, and how these are put into practice.

It explores the business' *Understanding of the Business Environment* by looking at how competitive and other intelligence is obtained from the business environment in which it operates, and how this is used in the development of its business strategies.

Next, it looks at *The Planning Process*, i.e. how the organisation turns strategic decisions and imperatives into action plans, in alignment with the strategic direction described in the first item of the leadership Category.

Thirdly, *Development and Application of Resources* examines the way the organisation builds, develops and applies its resources to the effective achievement of its goals and to increase future value. This also includes resources and assets not usually found on balance sheets, such as intellectual property (eg patents) and goodwill.

Category 3: Data, Information and Knowledge

At all levels of the enterprise, good decisions depend on good data and on appropriate knowledge. This category examines the various aspects of this, in three separate items.

Firstly there is the *Collection and Interpretation of Data and Information*. It looks at how the organisation determines what data it needs to collect, how data is handled and how it is processed, analysed and interpreted to enhance the organisation's knowledge of its internal and external environment and operations.

The way the data is applied is examined by *Integration and Use of Knowledge in Decision-making*. It describes how the organisation integrates information and knowledge from its various sources to support making decisions appropriate to its purpose and goals.

The item *Creation and Management of Knowledge* is a relatively new addition to the framework and tends to cause some difficulty, as many

organisations are only beginning to reach an understanding of what ‘knowledge’ (as distinct from information) actually is and how it can be managed. This item explores the systems and processes the organisation has in place for collecting knowledge, for stimulating the creation of knowledge and for capturing, managing and effectively applying knowledge.

Category 4 - People

In the context of this category, ‘People’ means the organisation’s people, i.e. anyone employed by the organisation in some way. It explores how people are encouraged, enabled, empowered and

“I have often heard businessmen mouth aphorisms like ‘people are our greatest asset’, and I have always thought it to be a completely asinine comment. People are not merely an asset, they are the company.”

Anita Roddick

trusted. It examines how the organisation goes about trying to align people’s personal goals with those of the company, and what the organisation does to help people reach their full potential. There are three separate items, as follows:

Involvement and Commitment of people is described by the systems and processes by which everyone is encouraged and enabled to contribute to the achievement of organisational goals and objectives, and to continual improvement at various levels.

Performance enhancement, people development and the alignment between people and the work they do are explored in the item *Effectiveness and Development*. It looks at how the organisation maximises its effectiveness through the contributions of its people.

The third item is about *Health, Safety and Well-being*. It examines how the organisation goes about providing a work environment (both physically and psychologically) that is conducive to maximising its people’s potential. It expects the organisation to recognise its people’s well-being, in all respects, as a critical component of business success.

Category 5: Customer and Market Focus

As we’ve quoted several times already: “*No Customers, no orders, no jobs*”. Obviously a sound market knowledge and effective Customer relations are vital to business success. In three separate items, this category explores the way in which the organisation analyses its Customers and markets, and how

it reflects the needs of its current and future external Customers in all its endeavours and activities.

Knowledge of Customers and Markets is the first item. It examines how the organisation ensures it has an ongoing understanding both of the market(s) in which it operates and may potentially operate, and of the needs and expectations of its present and potential Customers.

The second item is about *Customer Relationship Management*. Its intent is to describe how the organisation establishes, manages and evaluates relationships with its Customers. Factors included here are such issues as how easy it is for Customers to do business with the organisation, what processes there are for Customer feedback (on relationships), what is being done about continual improvement of relationships, etc.

The issue of Customer satisfaction is approached somewhat differently from earlier versions of the model. More emphasis is placed on *Customer Perception of Value*, which is the third item in this category. It looks at the systems and processes the organisation has in place to measure and manage the perception its Customers have of the value it provides for them. It also examines what the organisation has in place to measure its own ability to meet Customer value goals, and how well it does this compared to its competitors.

Category 6: Processes, Products and Services

This category explores the processes the organisation uses to provide Quality products and services to its Customers, as well as the systems and processes in place to manage and continually improve these processes. At first sight, this category seems a bit of a grab-bag of issues that are important, but didn't fit anywhere else (at least without creating more categories). On closer examination, all four items are relevant to this category and do fit together, if somewhat awkwardly, as components of managing processes for producing Quality products. Our one reservation is that we don't believe the issue of supplier relationships has the prominence it deserves.

As shown in the previous chapter, continual improvement isn't only about small, stepwise improvement of processes - it is also about innovation. So, the first item of this category looks at the *Innovation Process*, i.e. the systems and processes by which the organisation creates, acquires, evaluates and implements creative and innovative ideas, to accelerate business performance.

Secondly, 'Garbage In, Garbage Out', so *Supplier and Partner Relationships* to ensure Quality input play an important part in being able to produce Quality output.

Garbage In, Garbage Out

There is a light engineering workshop where they have slogans on the walls proclaiming "Only one level of Quality is acceptable here: Your very best!"

The operators are led to believe that they have full control over the Quality of their work. Yet, the firm's supplier policy makes it impossible before they even start - they purchase their parts on

Thirdly, there is the *Management and Improvement of Processes*. This item looks at the way the organisation manages and continually improves its processes to maximise operational efficiency and effectiveness. Note that both compliance with appropriate standards and continuous improvement of processes are examined in this item.

Finally, looking at what comes out the other end, there is the actual *Quality of Products and Services*. This describes the systems and processes the organisation uses to determine what Quality indicators it should use. It also looks at how these indicators are used to compare product Quality against required standards, Customer expectations and competitive alternatives.

Category 7: Business Results

This is the 'crunch' category! Whereas the other six categories can be thought of as dealing with organisational efficiency, Category 7 looks at organisational effectiveness. It addresses how the company knows that all the other things it is doing are actually having a positive result. It explores how the organisation demonstrates its performance, both to-date and into the future. Almost needless to say that this means the maintenance of some well thought-out key performance indicators. There are two items, one looking at performance now and the other at performance into the future. Both look at the 'big picture' - the whole of the enterprise in the whole of its environment.

Indicators of Success looks at what the organisation has in place to measure and understand its performance at the corporate level, using Key Performance Indicators and other measures to look at current results, trends and comparisons.

"Is your Quality effort improving your bottom line? If the answer is either 'No' or 'I don't know', you need to seriously review your Quality effort".

Robert Pereira

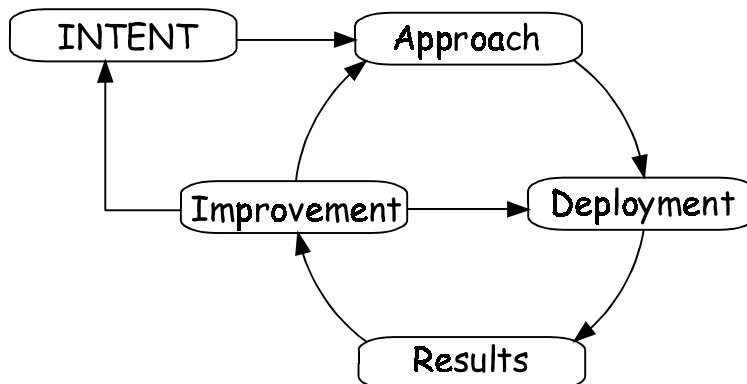
The item *Indicators of Sustainability* is a relatively new addition to the model and causes many organisations a fair bit of soul-searching. It looks at the systems and processes the enterprise has in place to help predict the likelihood of its sustainability and success in the future.

The ADRI Concept

The previous section should have given you a good idea of the breadth of the framework and an indication of its depth. But wait, as they say in the TV ads, there's more!

There is more to evaluating a business against the framework, for whatever purpose, than looking at each item and sizing it up against the detailed description of its intent. Each item is, in fact, looked at from four different angles, or, more accurately, in four different dimensions. These are Approach, Deployment, Results and Improvement, or ADRI for short.

These four dimensions are often represented as a simple cycle, similar to the PDSA cycle with which it has much in common, both being learning cycles. However, we believe that to explain the essence of ADRI, an extended version, including the *intent* of the item, is more useful. We were first shown this version of ADRI some years ago by our colleague Brian Thomas.



The *Intent* is the intent of the item as summarised in the previous section, described in detail in the AQC booklet and understood by those who have made a study of the framework.

Approach is the organisation's approach to putting the intent into practice. A good approach has at least the following characteristics:

- It has a clear design for operationalising the intent
- It defines how it will be implemented
- It includes measures to monitor the effectiveness of the approach and its deployment
- It is methodical and integrated with approaches to all other categories and items
- It is appropriate to organisational goals and objectives
- It is aligned with the Business Excellence principles
- It is proactive, i.e. prevention-based
- It is aimed at continuous learning and improvement
- It is based on reliable, quantitative information
- It shows a willingness to consider unique and innovative approaches

Deployment is the way the intent has been carried through to all parts of the organisation. Are we considering everything that should be considered? Are we involving everyone who ought to be involved? Is appropriate information being disseminated properly? Good deployment has at least these characteristics:

- There is clear application and implementation of the approach in all relevant areas
- The approach is applied to all areas where it could be expected to be applied...
- ...and it is used by people who could be expected to be using it
- The approach is integrated into management processes and into day to day operations, according to its design

Results refers to the extent to which the Approach is working. Note that we are not looking at overall company results, but at (a) the results being obtained *for this item*, and (b) whether or not these actually stem from the stated Approach and Deployment. Note that to be able to do this properly, the way results will be monitored and measured must be part of the design of the Approach in the first place! For a good assessment in the Results dimension the following must apply:

- Valid measures are used - these would normally be measures defined by the approach
- Outcomes are compared to expectations from the approach
- Performance is compared to goals and objectives set in the approach
- Trends are measured showing that results being observed are sustainable (and improving)
- Observed results are appropriately communicated, interpreted and utilised
- The results are aligned with overall results planned for the whole organisation
- Examples are available to support all the above

Finally, *Improvement* looks at the continuous improvement component or dimension. What is being done in this item to continually improve the way the intent is being addressed? Are we following through? Are we learning anything? Note that, unless the results dimension is addressed well, there will be little, if any, information or ammunition to plan any meaningful improvement. Some of the characteristics of good evidence of pro-active improvement might include:

- There are processes for reviewing the effectiveness of approach, deployment and the measurement of results
- The observations of the Results dimension are input to this
- Consistent and reliable processes for effecting improvements are defined and being used
- Improvements derive from planned actions and practices
- Processes contain built-in continuous improvement mechanisms
- Learnings are identified, captured and implemented

The ADRI system adds significantly to the complexity of the framework and to the skills and experience required to do a value-adding assessment. For this reason, there have been moves from time to time to have this aspect dumped from the model. We believe that, if this were ever to happen, the framework would lose most of its usefulness and become little more than just another checklist.

Scoring

There is yet one further facet to the framework: there is a numerical scoring system associated with the evaluations or assessments. This is merely a means to an end and has no bearing on the philosophy of the framework. We've decided not to go into detail here, although there will be some remarks about it in the next chapter.

The ABEF and ISO 9004

As we've described ISO 9004 as a holistic approach, yet considered it well short of the demands of a framework like the ABEF, it may be of interest to do a brief comparison, using ISO 9004 headings.

Principles

A comparison of the principles has already been made in Chapter 7. There are many similarities. Some of the major differences are that ISO 9004 does not emphasise the variability concept, but is much more explicit about supplier relationships. The ABEF is stronger in the areas of business planning and community/environment involvement. It also reflects more recent thinking than the ISO principles.

Management Responsibility

ISO 9004 is mainly concerned with applying the PDSA (PDCA) cycle to systems, to deployment of Quality policy and objectives, and with planning to meet the needs of all interested parties (stakeholders) through development of the systems. The ABEF covers all that, but also considers issues like strategy, ethics, values, etc. In addition, it explores the way in which policy and objectives are initially determined.

Resources

ISO 9004 covers physical resources, knowledge, people, training, information, infrastructure, work environment, suppliers and partners, natural resources, finance, etc. The ABEF covers all of these and, with the possible exception of suppliers and partners, in greater depth.

Product/Service Realisation

ISO 9004 has a strong emphasis on the management of process control through the design-manufacture-service delivery chain. The ABEF covers the same requirements, but with less direction. On the other hand, it is stronger than ISO 9004 in the Customer requirements area.

Measurement, Analysis, Improvement

ISO 9004 has a strong focus on Customer satisfaction, system performance and regard for other interested parties. It emphasises continual improvement of the system and its outcomes. The ABEF adds another dimension by seeking to build continuous improvement into all criteria and value creation processes.

ADRI

A major difference between the two frameworks is that ISO 9004 lacks the ADRI concept, or something similar. Although a valuable model, it is more a stepping stone towards more comprehensive frameworks like the ABEF and Baldrige, rather than an alternative or equivalent.

Chapter 20 - Key Points

- A number of Frameworks of Business Excellence have been developed around the world in recent years;
- Those used most in Australia are the Australian Business Excellence Framework ('ABEF') and the Baldrige Criteria for Performance Excellence ('Baldrige');
- These frameworks have their origin in National Quality Awards criteria and they are still used for that purpose (noting that these awards are now called Business Excellence Awards);
- The ABEF is grounded in a set of twelve principles reflecting contemporary Quality thinking;
- It consist of seven Categories, each subdivided in a number of Items. The Categories deal with Leadership, Strategy, Data and Information, People, Customer Focus, Processes and Products, and Business Results;
- Each item is examined in four dimensions: Approach, Deployment, Results, and Improvement;



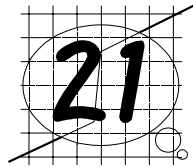
1. Information on the ABEF is available from the Australian Quality Council's website: **<http://www.aqc.org.au>**. There is also other information on the applications of the framework, Quality Awards and Organisational Self Assessment.

Note however, as mentioned at the beginning of the book, that there may be a change in 2002 in the way the AQC and the ABEF are administered. Please contact the publishers or the authors if you have difficulties tracing this reference.

2. Details of the Baldrige framework and awards are available at **<http://www.quality.nist.gov>**. This page will lead to other Baldrige-related pages, including options for downloading the framework documents.

"Practically everyone in an organisation is already willing, and potentially able, to work in the new way. They only need to be shown HOW - to be enabled, entrusted, empowered."

Bill Conway



How big is your Big Picture?

“When Pablo Casals was asked why, at 85 years of age, he continued to practise for five hours a day, he replied ‘Because I think I’m getting better’.”

Tostain

Continual Improvement doesn’t only apply to individuals and to processes - it also applies to whole organisations. To practise continual improvement at the corporate level, it is helpful to have some kind of reference mark, some kind of ideal model of excellence. Once you have that, you can use it initially to figure out where you are in the excellence stakes. In other words, find out how big your organisation’s big picture is in the light of contemporary world thinking. After that, you can use such a model to benchmark your enterprise from time to time, to see if you’ve improved and if so, how much, and where your next planning priorities lie.

It is quite possible to use ISO 9004 as such a model or benchmark - in fact, ISO encourages it. If you’re completely new to the idea, it may be very good place to start.

The process of an enterprise benchmarking itself against ISO 9004 or some other framework of excellence is generally referred to as Organisational Self-Assessment. Increasingly, organisations who consider themselves ready for it are using Business Excellence frameworks such as the ABEF and Baldrige for this purpose.

Organisational Self-Assessment (OSA) is a comprehensive, systematic and regular review of an organisation’s activities and results, measured against a model of business excellence which contains comprehensive criteria. It provides an enterprise with an opportunity to learn its major strengths and its significant opportunities for improvement. It shows how Quality principles and practices can best be applied and how the company stacks up against an ideal model representing current world thinking.

"The difference between what we do and what we are capable of doing would suffice to solve most of the world's problems".

Gandhi

What does OSA get you? And why ABEF or Baldrige?

Well-conducted OSA programs provide a structured approach to continual organisational improvement, and help to prioritise opportunities and link these to organisational strategies and objectives. They help to integrate improvement activities into normal operations and to create interest, enthusiasm, and a platform for education in Quality. If carried out regularly, OSA is a tool to monitor corporate progress and achievements, toward corporate continual improvement. Of course, the benefits will depend on the model or framework used. Once an organisation has the 'flavour' of self-assessment, Business Excellence frameworks such as ABEF and Baldrige are good choices, because they:

- are internationally recognised models;
- are based on Quality principles;
- represent global, contemporary thinking on best practice;
- are themselves subject to continuous improvement (reviewed annually);
- reflect a holistic approach;
- show a balance between process focus and results orientation, between soft technologies and hard technologies (remember the vector diagram of Chapter 19), and between product value and corporate value.

There is concrete, if indirect, evidence that organisations which use Business Excellence frameworks enjoy significant advantages over those that don't. We couldn't locate any research results on companies using these frameworks only for self assessment, but there have been several studies on companies that have won Quality Awards or Business Excellence Awards based on the frameworks.

Australian research results are shown in the AQC's ABEF booklet. They show a positive correlation between average annual improvement in a company's Key Performance Indicators and the numerical score given by expert (external) evaluators to its Quality Award or Business Excellence Award application.⁽¹⁾

An American study, The Baldrige Stock Study, took a different approach. The sixth such study looked at all publicly-traded recipients of Baldrige Awards over the period 1988-1999 and hypothetically invested in each company in the month following its award. It then looked at the combined value of these investments at the end of 1999 and found that the overall increase in value of the investment was some 1101%. Over the same period, the S&P 500 stock index had increased to only 228%. (This is only part of the study - for a full report, go the NIST web site and follow the link from 'Materials available').⁽²⁾

What is the Difference between a (Self) Assessment and an Audit?

This book is mostly about 'Quality Standards', a term usually associated with 'audit' and 'compliance'. So it may be worth touching briefly on how an assessment (done internally or by external experts) differs from an audit and how a framework like the ABEF differs from standards like ISO 9000:2000.

The ABEF or the Baldrige model doesn't tell you how to run a company. In fact, they don't tell you anything about what you must or must not do. What they do tell you is whether you have a system in place to create an environment of continuous improvement. In short, Business Excellence Frameworks are *descriptive* rather than *prescriptive*. An example of the difference might be the issue of business planning. A descriptive framework might say what ought to be done: "*Excellent businesses have a sound business plan*", or "*You should have a business plan if you want to strive for excellence*". On the other hand, a prescriptive standard tells you what you must do or have: "*You must have a business plan that addresses the following issues*" or "*A sound business plan addressing the following issues must be in place*" (QS-9000 actually says this).

An assessment is an evaluation against a *description*. An audit is generally about compliance to ensure risks are controlled and outcomes are assured - it is an evaluation against a *prescription*. Note that whilst ISO 9001 is almost entirely prescriptive, the Eight Principles of ISO 9000:2000 are descriptive (but not in any detail), and ISO 9004 has some of both characteristics.

With a self-assessment particularly, the company has nothing to prove to anyone but itself. Nobody needs to be impressed, no certificates or ‘ticks’ are involved. It is purely an internal matter and unless it is done realistically, warts and all, it has limited value and may even be counter-productive.

In our experience, people brought up on a diet of standards, external audits and certification often have difficulty grasping the very different philosophy of self assessment against a Business Excellence Framework. To aid understanding, here is a little checklist of what OSA is and isn’t that we have used in our training courses from time to time. *Note that this list is purely about OSA - there is no implication that we see the right-hand column as referring to the audit process in any way.* In fact, the approach to audit and OSA should both be consistent and positive, as we explained in Chapter 17.



OSA is all about...

- ✓ A holistic Approach
- ✓ Finding Merit and Opportunities
- ✓ Common Sense
- ✓ Self Assessment with Expert Help
- ✓ Learning at all levels
- ✓ Evaluating against a description
- ✓ Co-operation
- ✓ Professionalism
- ✓ Team Work
- ✓ Lasting Improvements
- ✓ Evidence
- ✓ Asking and Listening
- ✓ Learning and Growth



OSA is NOT about...

- ✗ A fragmented Approach
- ✗ A fault-finding exercise
- ✗ Pedantry
- ✗ Outsiders passing Judgement
- ✗ Interrogation
- ✗ Ticking boxes
- ✗ Rivalry and competition
- ✗ Nit-picking
- ✗ Private Agendas
- ✗ Flash-in-the-pan Efforts
- ✗ Hearsay, Opinion, Guesswork
- ✗ Judging and Telling
- ✗ Pass or Fail

A reminder before we go any further: Doing an organisational self-assessment, either on your whole company or parts of it, is no trivial matter and we urge you not to embark on it without access to experts on the subject, either from within your own organisation or from outside. There is much more to it than we can hope to condense in a few pages and in any case, this is not a book about self-assessment. So, as in the previous chapter, this is an overview treatment only, to try and give you as complete a picture of big-Q Quality as we can.

OSA - Ensuring Success

An OSA can represent a significant investment of time, effort and money. It is therefore natural to ask *“How do we know an OSA has been successful?”* There are many ways in which this can be measured, and we believe the following three aspects represent important results areas for determining success:

- **Learning**

An OSA has been successful if the organisation considers it has learned from the exercise, if individuals feel they have learned something from it as well, and if the environment for organisational and individual learning has been enhanced.

- **Use of the Results**

An OSA, if well-conducted, will identify major strengths and major opportunities. Unless these are integrated into the strategic business planning process, the investment of time, effort and money is largely wasted.

- **Cost-effectiveness**

The bottom line matters! So a successful OSA is one where the majority of people at various levels believe that the investment has been worthwhile, that you've got value for money and that you will probably do it again.

Note that an OSA does not include finding solutions. It identifies areas of opportunity, but decisions on how these opportunities may be addressed are

a separate issue. A question that might follow logically from the above is “*How can we make sure our OSA will be successful?*”. Here are half a dozen important factors we consider vital in making your OSA a success:

- **Leadership**

The whole OSA process must not only be led by senior management, it must clearly be seen to be so. At the same time, it must not be perceived as ‘one of those things that management imposes on us from time to time’. In other words, the OSA process requires leadership as well as management.

- **Education**

The underlying principles must be understood by everyone. Not everybody needs to be an expert of course. The level of education is commensurate with the level of involvement and responsibility, but everyone needs to know enough to contribute meaningfully.

- **Involvement**

There are many practical reasons why it is better to involve groups of people, rather than just individuals.

- **Facilitation**

It is essential to have competent facilitators to gather the necessary information and put together the assessment. Facilitators (internal or external) must be competent in both the content and the process, i.e. knowledgeable about both the framework and about carrying out an OSA that adds maximum value. They must not impose their views on the outcome. Their two-fold task is to help collect meaningful input from all participants and to turn this into a value-adding report.

- **Continuity**

Ideally, OSA’s are seen as something the organisation does from time to time as a normal part of the way it operates. It is vital to provide continuity. This means following through the outcome of the OSA with everyone, taking opportunities to point out how things that happen in the company may stem from previous OSA’s and reinforcing this, especially shortly before the next OSA.

- **Broad Spectrum**

Business processes do not stop at the boundaries of the business, and the framework often refers to stakeholders or other interested parties. A successful OSA fully considers all these other interested parties in the scope of the assessment and, where appropriate, involves them in the actual process.

Methods for OSA

There are virtually an infinite number of models for doing self-assessment, from the ‘Snapshot Diagnostic’ in the back of the ABEF booklet⁽¹⁾ to a full-fledged simulated Business Excellence Award application and evaluation. Here are a few examples, together with some of their pros and cons.

Internal Assessment

A team of selected staff are trained, collect the data, and write the report.

Advantages: Low external cost, commonality across the enterprise, knowledge stays in the organisation, easy monitoring of progress, detailed feedback, usually good identification of strengths and opportunities.

Disadvantages: High internal cost, significant scope for bias, tends to encourage internal competition, needs thorough training, perceived confidentiality and trust problems, time constraints, little scope for “undiscussables”, often poor communication with senior leadership.

Surveys

The framework is presented as questions or statements with a small number of possible responses. The survey needs to be designed to distinguish importance from performance.

Advantages: Low cost, consistency (everyone gets the same questions), terminology can be tailored to different departments, minimal training, easy to use.

- Disadvantages: No real understanding required, not seen as part of a whole, difficult to convey the intent, answers reflect recent events, sit-on-the-fence ratings (or too soft/too hard ratings), no scope for “undiscussables”, little learning, no way of telling whether the respondent understood the question.

Facilitated Questionnaire

Fundamentally, this differs from surveys only in that you make sure people understand the questions. This requires skilled facilitation and is often thought to enhance the usefulness of the results. However, this is not always the case.

Advantages and disadvantages are similar to those for Surveys.

Matrix

A fill-in-the-squares approach. Eg. columns are categories/items, and rows are for ratings or ADRI-type statements. Needs careful design.

- Advantages: Low to moderate cost, standard model (but can be customised), tailored terminology, whole picture always visible, can identify strengths and opportunities.
- Disadvantages: Replaces real understanding, limited interpretation of intent, reflects recent events, danger of being prescriptive, limited scope for “undiscussables”, collects perceptions rather than data.

Award Simulation

Preparing an application for a Business Excellence Award and then evaluating this as an Awards evaluator would. If done well, this is the best method for generating energy for change, regardless of which model you use.

- Advantages: Good education and training, rigorous approach, detailed assessment report, reveals strengths and opportunities, forces use of data, involves people.

Disadvantages: High cost, significant expert training, time consuming, tendency to preach, ownership of outcomes can be a problem, seen as a 'management thing', scoring can lead to comparison and competition.

Management Workshop

A management workshop with several sessions and including one of the previous methods for information gathering, etc. The assessment is actually done in one or more workshop sessions.

Advantages: Involvement of influential managers, provides management team training, tests assumptions and beliefs, promotes organisational learning, involvement of many groups, commitment to outcomes.

Disadvantages: Can reinforce separation of leadership team from the rest, time problems, problems with belief in validity of the model.

As we said, these are only a few possible methods and there are many variants. For example in smaller organisations, discussion workshops involving non-management staff may be feasible. The actual method chosen is a function of many factors, including the size and type of company, and the resources available. There is no 'one size fits all' model.

A Practical Tip

Many organisations use a method of self assessment that involves input from many people. Although this input gathering (by surveys, workshops, interviews, etc) would be facilitated by people versed in the intent and mechanisms of the framework, most of the participants would have had limited, if any, prior exposure. We have found that in such cases it is probably best not to tackle the categories in their traditional order, but to start with those categories with which people are most likely to feel at ease. For example, start with 'People', perhaps followed by 'Processes, Products and Services'. Then 'Data, Information and Knowledge' and 'Customer and Market Focus'. After this, people should be sufficiently comfortable with the process to tackle the remaining matters which they often perceive as management issues and not in their sphere of influence.

Scoring

In the previous chapter, we mentioned that there is a numerical scoring system associated with the ABEF. Its primary purpose is as a tool for Business Excellence Award evaluators. Any use of the system in self assessment must be done with the greatest of caution.

There is a scoring matrix in the ABEF booklet. With the aid of this matrix, a numerical score between 0 and 10 can be given to each of the A, D, R and I dimensions of each item. Items and Categories have different importance weights and by combining the raw scores with these weighting factors, an overall score for each category and for the whole assessment can be obtained (the maximum total score is 1000). Because we have seen so many instances of inappropriate use of this scoring system, we feel the need to record our thoughts about it in this chapter.

In particular, care must be taken that scoring does not become the primary focus of the self assessment. The primary information for improvement purposes lies in the Strengths and Opportunities identified, not in the scores.

It must also be realised that scores from questionnaires and the like are merely labels, NOT numbers, and as such doing any kind of arithmetic with them (even calculating averages) is not mathematically sound.

However, if used with care, scoring can nevertheless be a useful part of the assessment process, for these reasons:

- Use of the scoring matrix and determining scoring forces a systematic process approach to the assessment project;
- It helps to highlight imbalances, ie differences between performance in the various categories and items. The Framework is a holistic model and moderate scores across the board is considered a better outcome than some very high scores coupled with some very low scores;
- Where there are multiple evaluators, it facilitates reaching consensus between them - this is the primary use of scoring by Business Excellence Award evaluators.

Note that it is not meaningful to compare scores from one assessment to the next, or to use an ABEF score as a benchmark. There are some very good reasons for this:

- The total score does not say anything about the all-important balance between and within categories;
- Comparing a score with that of the previous assessment is reacting to point to point variation. This contradicts everything we know about variation - a fundamental concept of Quality thinking and practice;
- Following on from this, the underlying variation is not known, so there is no way of determining the cause of any difference in the scores;
- In any case, the framework is reviewed and revised every year, so successive assessments don't actually measure the same thing;
- It is also highly unlikely that successive assessments will be done on exactly the same basis. In fact it is common for a score to go down, even when the organisation knows it has improved. The reduced score is due to an improved understanding of the intent of the framework, which leads to a more informed and more critical assessment;
- There is even some evidence to suggest that companies that have developed a profound understanding of the framework always get scores of around 50%, i.e. they consistently identify lots of strengths and lots of opportunities, but each time at a higher level of continuous improvement (ie their PDSA cycle is a helix, rather than a circle!);
- Some methods of doing OSA (eg those using surveys or questionnaires) can virtually guarantee middle-of-the-road scores. In cases like that, the only scores that are fully meaningful are those for the individual questions.

The temptation to use scores to compare or rank the performance of departments or divisions should be vigorously resisted as it will be detrimental to improvement strategies. Creating a competitive environment is likely to lead to departmental strategies to improve the standing in the 'league table'.

"It's not always easy to distinguish between self assessment and self deception."

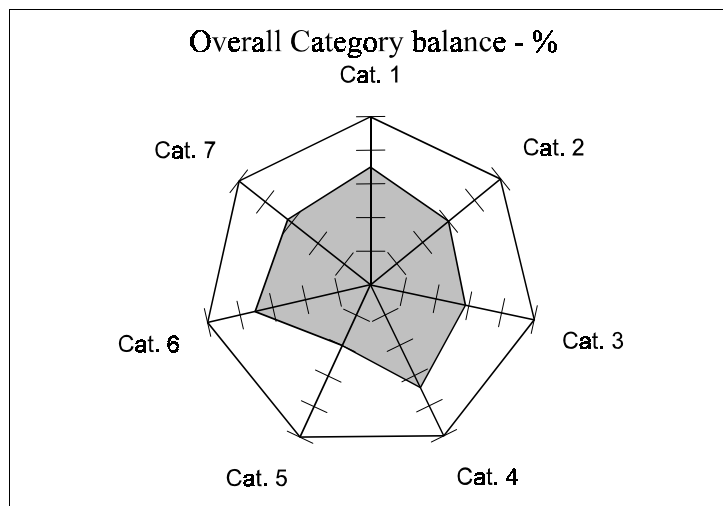
Prof. John Dalrymple, RMIT University

Such strategies are almost certainly different from (and are quite likely to run counter to) strategies designed to tackle the opportunities of greatest importance to the organisation as a whole.

Be ever vigilant against the danger of becoming ‘a company for getting high scores’ rather than a company that increasingly adds value to all its stakeholders through the pursuit of Quality.

Using scoring wisely

A few years ago, Jeff facilitated an OSA by means of a workshop involving a representative cross-section of employees. They used scoring to evaluate the balance between categories and recorded the scores in the form of a ‘radar chart’. This clearly showed a ‘dent’ in Category 5 (Customer and Market Focus) and they realised that this was the priority opportunity to work on.



Using the Results of an OSA

The primary outcome of a well-conducted OSA is the identification of significant strengths and areas of opportunity. There will be at least three aspects of the latter we need to address. Firstly, there could be lots of opportunities identified and we probably won’t want to tackle them all right now. Secondly, we need some guidance on prioritising the ones we might

Back to Square One!

In another organisation we came across, OSA scores were actually used as part of managers' performance reviews. We've seen some inappropriate use of OSA scoring, but this must take the cake. It would be funny if it weren't so deadly serious.

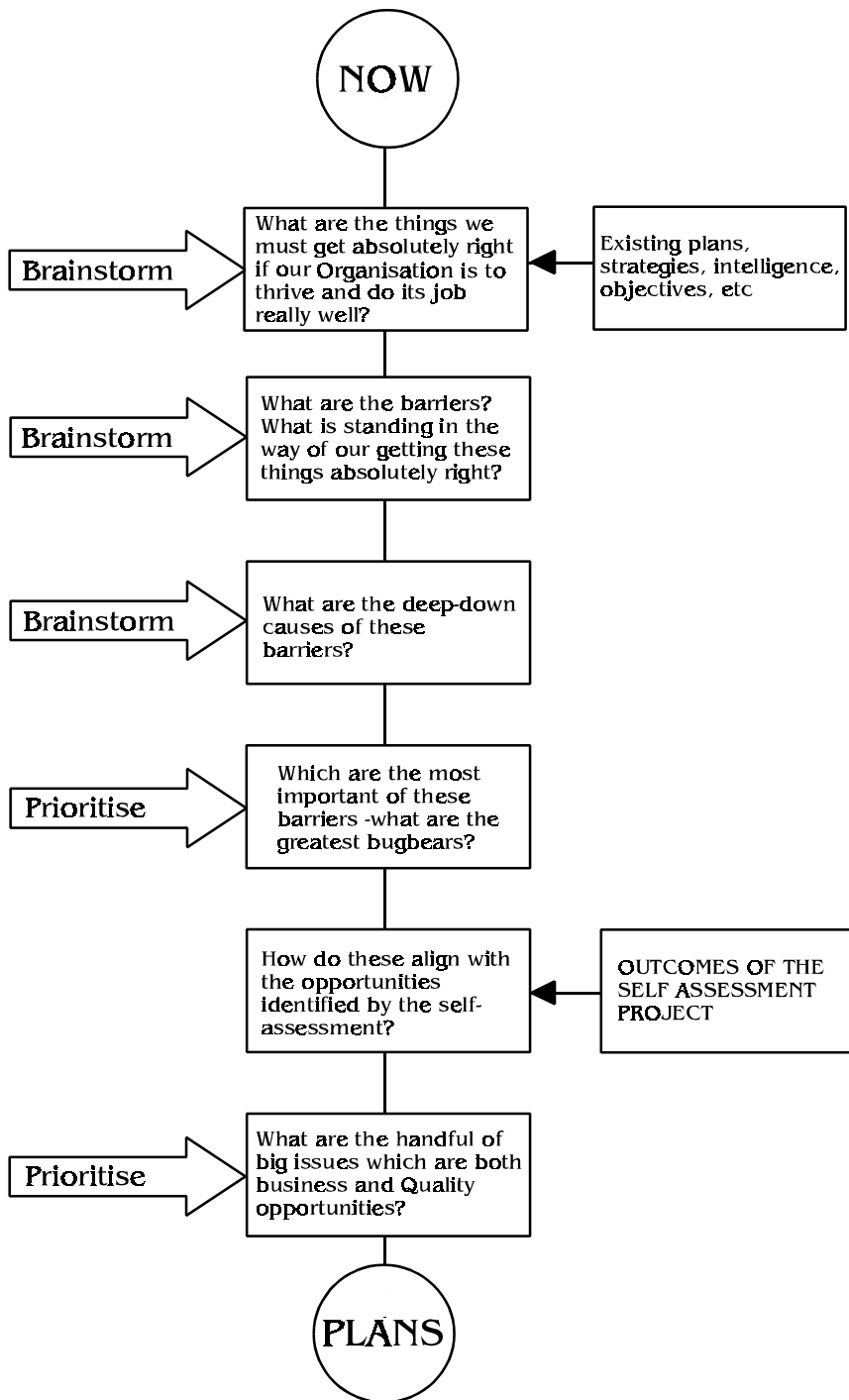
want to tackle; and thirdly, we must know how they align with our organisation's strategic direction and plans. The flow chart on the facing page gives an overview of a process that has been used successfully by several companies with which we have worked.

Note the three levels of brainstorming (or whatever idea-generating techniques you prefer). We found that you generally get more tightly-directed plans if you first get to the very bottom of what's standing in the way of your achieving the things you have to.

You can make the last couple of steps as simple or as complex as you wish. If you like playing with numbers, one method that has worked well is to allocate some kind of importance weighting to the major barriers that need addressing. Then score the various opportunities from the OSA according to the extent to which they are likely to address each issue. Between the two sets of numbers you should be able to answer the question in the last box.

Chapter 21 - Key Points

- Organisational Self-Assessment (OSA) can be seen as a tool for continual improvement at the corporate level;
- ISO encourages self-assessment against ISO 9004;
- This can be seen as a stepping-stone to doing OSA against more demanding frameworks such as the ABEF or Baldrige;
- Self-assessment is an evaluation against a descriptive model - there are no external prizes;
- It takes skill and other resources to do OSA in a value-adding way;
- There is a variety of methods to do OSA, each with their pros and cons;



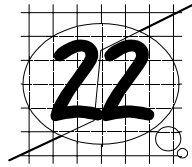
- Care must be taken that any numerical scoring is used wisely, within its limitations;
- It is important that the outcomes of an OSA are integrated with the strategic planning process of the organisation.



1. Latest Australian Business Excellence Framework Booklet
Australian Quality Council, <http://www.aqc.org.au>
(See note on this reference at the start of this book and also at the end of the previous chapter)
2. Baldrige Stock Study:
http://www.nist.gov/public_affairs/stockstudy.htm,
or go to the home page (<http://www.nist.gov>) and follow the links
via 'Material available'

*“Those who say it cannot be done
should get out of the way of those who are doing it.”*

Joel Barker



The Thoughts behind the Deeds

“Thought is the basis of all reality”

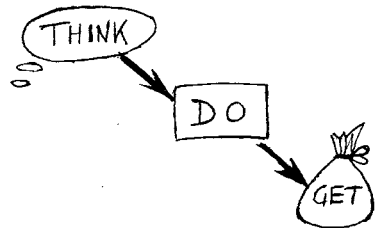
‘The Traveller’ in Star Trek - TNG

An organisation that fits the picture of excellence we’ve painted in previous chapters doesn’t just happen. In a truly excellent organisation that is in business for the long haul, people at all levels and in all positions do many things differently from the way they have done them in the past.

There is an old, oft-quoted saying to the effect that *“If you continue to do what you’ve always done, you’ll continue to get what you’ve always got”*. Well, we’d like to up the ante a bit and add this:

“If you continue to think the way you’ve always thought, you’ll continue to do what you’ve always done”!

If the never-ending quest for excellence is to be sustainable, it has to start with people *thinking* about things differently from the way they have thought about them in the past.



So, to finish this book we’d like to suggest that to maintain a genuine and unrelenting drive for Quality and excellence, organisations, as well as all their people, at all levels (but especially at the top), face two challenges: They need to change the way they think about Quality, and they need to change the Quality of their thinking. Jo has written about this in detail in his book ‘Quality Thinking - Thinking Quality’⁽¹⁾. In this chapter we’ll confine ourselves to introducing some of the thinking processes that form the basis of this transformation.

"Manpower is something that is beyond measurement. Capabilities can be extended indefinitely when everyone begins to think."

Taiichi Ohno

You will recognise several things that are often presented simply as 'something you need to understand', or as 'one of the tools of TQM'. They are actually much more than that: they are ways of looking at the world with new eyes.

Not unexpectedly, you will also recognise a number of issues that have been covered in Chapter 7, where we talked about the Eight Principles of ISO 9000:2000. Well, we reckon a little reminder in a slightly different context won't go astray!

A Recognition of Diversity

In the sense that no two human beings are exactly identical, all people are NOT born equal. We look different, we sound different - no matter what characteristic we examine, there are differences between individuals. In

particular, we all have different innate preferences for the ways we use our minds. We have different preferences for the ways we carry out the two major mental functions: gathering information and drawing conclusions (or making decisions). We also have different preferences for the ways we interact with the rest of the world.

"Mankind will reach maturity on the day it learns to value diversity - of life and ideas. To be different is not necessarily to be ugly; to have a different idea is not necessarily to be wrong."

Gene Roddenberry

A major characteristic of a Quality organisation is that its people appreciate this about themselves and about others. They understand the effects these differences have on the ways people think and behave. By implication, and in simplified form, this was the theme of the 'vector' model shown in Chapter 19.

One of the most simple (we believe *too* simple, but that's another story) ways of looking at this is in terms of left-brain and right-brain thinking - we're sure you will have come across this. Traditionally our society has been heavily biased towards left-brain thinking: analysis, bottom line, organisation, dotting i's and crossing t's. In other words, the 'Hard Technologies' force of that vector model.

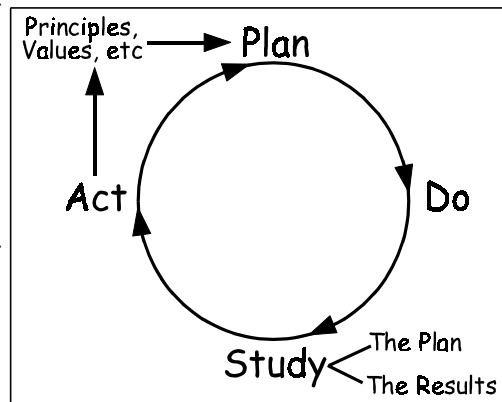
This goes some way towards explaining why the change to a culture focussed on effective business improvement is difficult for so many people. A successful Quality culture requires a whole-brain approach by everyone. This doesn't simply mean having a balanced analytical/creative approach. It also means being able to switch between left and right dominance as circumstances require.

If you deal with other people as if they are a carbon copy of yourself, you will be putting up significant barriers to communication and co-operation. The trick is to find out what makes people tick (and that will be different for everyone) and then deal with them accordingly.

Cyclic Thinking

The Plan-Do-Study-Act Cycle (PDSA) is well-known and has been mentioned several times already. The essence of the concept is in the four steps of making a plan, carrying it out, studying the outcomes, and acting accordingly before making more plans. The theory is that every time we have gone around the cycle, we know a bit more and we've become a bit better. We've shown it here in a slightly expanded form from the way you would normally see it. The PDSA cycle is not just a cute idea or a tool or a model. It is a learning cycle, and to really make it useful, we have to live it. It goes hand in glove with being process-oriented, and with understanding variation - both of which we'll touch on shortly.

The funny thing is that most of us already use the PDSA cycle as a 'mind track' in many of our private pursuits. If you play golf, for example, think about how you plan, execute, and follow up a golf shot, and compare this with the steps of the cycle. Yet in work situations, the pressures around us are such that we often go onto the next project as soon as we have completed the 'Do' step of the previous project. We make little, if any, time for reflection.



We must learn to always think in terms of the complete cycle, the way we already do when playing a golf shot, learning a piece of music, cooking dinner, or growing tomatoes.

Process Focus

All work is part of one or more processes; all results are the outcomes of processes. People in a Quality organisation recognise that the only way you can improve a result is to

improve the process that creates it. To reduce waste, we must look at the processes that create the waste. To reduce variation, we must look at processes and identify the sources of variation within them. The emphasis is on removing the causes of problems rather than on managing those problems - on curing diseases and then preventing them, not on taking pain killers or applying band-aids.

Yet, shifting the focus from end results to the processes that create them is one of the biggest mental leaps most people have to make. In some businesses people seem to spend large amounts of time analysing and manipulating results, and spend little or no time and thought on the processes that produce these results. A bit like grabbing a dog's tail and shaking it to try and make it happy, because you've been told that a wagging tail means a happy dog!

If many people have difficulty shifting their focus 'back up the process', they have even more problems with 'trusting the process'. In other words, having been satisfied that everything has been done to design and put in

"If you can't describe what you are doing as a process, you don't know what you're doing."

W Edwards Deming

place the best possible process, allowing the process to take its course with only the essential monitoring and no 'fiddling'.

It is important to understand the implications of process thinking when dealing with people. If their performance is judged solely by results, we ignore the processes whereby the results are obtained. It makes a lot more sense (and is also more difficult!) to assess people's performance by the contribution they have made to continuously improving the processes by which we serve our Customers and achieve our other corporate and personal objectives.

Of course results are important - they're what we are in business to get, and they determine whether our definitions of organisational success are being met. But once appropriate processes have been put in place, it's those processes that get us the results and it's the processes that provide the

"It is most important to distinguish between people and the process. Nine out of ten results, good or bad, are due to the process, and not to the individual."

Bill Conway

opportunities for improving those results. Masaaki Imai explains this very well in his celebrated book ‘Kaizen’, where he talks about Process-oriented Management versus Result-oriented Management.⁽²⁾

Variation - the ubiquitous Factor

Everything varies, no two things are ever the same, and nobody knows the ‘correct’ number to anything. Very few questions can be answered with a single number.

“The central problem in management and in leadership is failure to understand the information [contained] in variation.”

Lloyd S Nelson, quoted by Deming

It must be accepted that variation is a natural part of life. If a measurement, or an error rate, or a time-to-respond, is different from yesterday’s, chances are that there is no special reason for this - it’s the way the system works.

Like PDSA, Variation is not just an interesting idea. It is a concept that we need to **espouse** totally as an automatic part of our thought-processes: a turnaround from searching for similarities to appreciating differences; to accepting that measurements are always estimates. To know, without having to think about it consciously, that when you take a dozen measurements, you’re likely to get twelve different figures, one of which is the lowest and one of which is the highest, and that nine times out of ten, there is no judgement, good or bad, associated with this.

In the context of this book, it is probably worth reminding you that the primary purpose of Quality systems and standardisation is the reduction of variation!

Types of Variation

It has been quoted (by Deming and others) that some 85 to 95 percent of all the causes of variation are random variations built into processes (common causes), and only a small minority is attributable to unusual occurrences (special causes).

This distinction is important for a number of reasons. For example, inappropriate decisions could be made (and a lot of waste created!) if common causes are reacted to as if they were special, and vice versa. The purpose of statistical process control is to be able to tell the difference between the two causes of variation. Another reason, related to the first, is that a process is not predictable (statistically ‘stable’) unless all its variation is due to common causes only.

Waste - a different Perspective

The elimination of waste is probably the most fruitful area for effecting improvements in Quality and profits, but not if we persist in managing waste, and seeing it only with 'old' eyes. We need to adopt a whole new concept of what 'Waste' really is. Try this definition on for size:

**WASTE is the difference between the way things are
and the way they would be if everything was always right.⁽³⁾**

This is a broad definition and, admittedly, contains things that would have to be classified as unavoidable. Nevertheless, once you look around you through the 'lens' of this definition, you will realise the enormity of the opportunities opening up for you. In traditionally managed companies, waste on this definition has been estimated by people such as Conway, Crosby and Deming to be at least 25% of turnover and, in some cases, as high as 60%. For many companies that represents several times their profit margin! Even pegging the waste back a few percentage points can represent large sums of money.

Waste can take many forms. Capital is wasted if we invest in something, like new equipment, too early, or too late. Waste of people's time, largely by lack of good communications skills and processes, has been estimated at 20-50% of total person-hours. Waste of material is all too obvious - this form of waste is probably easier to see, firstly because it is often tangible and literally visible, and secondly because of its increased profile due to environmental concerns. Waste from lost opportunities is unknown and unknowable, but it could be very large indeed.

The word 'waste' has negative connotations. So have another look at the above definition - it's easy to make it sound very positive indeed. Just replace the word 'Waste' with 'Opportunity'! In fact, this makes it easier to see that things like unrealised potential for doing better and unrealised competitive advantages are also forms of waste!

Customers - Who are they?

Plenty has been said about Customers in various parts of this book. What we may not have explored sufficiently is the issue of what Customers are, exactly. Customers are an all-important facet of Quality in all its meanings. Yet it is our experience that if you ask ten people to define 'Customer', you get ten different definitions. Most of them, in our opinion, inadequate.

Identifying **who** your Customers are is not always easy either. We find it helps if you *think in terms of processes*. First identify one of your processes and then ask who the Customers are *of that process*.

"Success is about caring for your Customers. I believe that the producer/Customer relationship has to always be a win-win situation with a good deal for both sides."

Michael Schildberger

As far as we are concerned, anyone who receives something either inside a process or from a process, is a Customer of some sort. And what about you, personally? Who are your personal Customers? We challenge you to play with this definition:

**Anyone who is at the receiving end of what I say or do
is my Customer, and is entitled to Customer status!**

System Thinking

System Thinking as a discipline has been around for nearly half a century, but it seems that its importance has only been appreciated in recent years. In simple terms, it is the recognition that everything is connected to everything else, and that mistakes will be made if we assume that systems are simple. We need to acknowledge that systems are complex and remind ourselves that there is no need for dangerous simplifications. The human mind is perfectly capable of dealing with complexity, if only we let it! Going the other way, and making things unnecessarily complex, isn't fruitful either of course. The trick is not to confuse 'simple' with 'simplistic'!⁽⁴⁾

We know that, whenever we change a system or process, we will affect its outcomes. But we will also affect other things beyond, at or below the level of that system or process, i.e. not only downstream or upstream, but also in the surroundings in which the process operates, and in the larger environment of which those surroundings form a part, etc. As they say in the cake advertisement, layer upon layer upon layer. We must recognise and deal with the fact that changes to processes also have effects at higher levels. A failure to consider this has resulted in many situations where so-called improvements turned out to be the opposite in the longer term (and on a bigger scale!) - the "It seemed a good idea at the time" syndrome!

Digging Deep

It's often said that the five most important questions in the pursuit of improvement are Why?, Why?, Why?, Why?, and Why? What this means in practice is getting into the habit of not settling for the obvious, not

accepting an answer as either the only or the ultimate answer. Most answers are not 'bedrock' answers - they are often perceived solutions (often to undefined, or even unrelated, problems), symptoms, cover-ups, etc.⁽⁵⁾

"For every problem, there is one solution which is simple, neat and wrong."

H L Mencken

If we're serious about eliminating waste and about continuously improving all forms of work, we need to get into the habit of getting down to root causes. This has a

not altogether unexpected bonus: you will not only optimise your chances of making real, lasting improvements but, because you are digging deep, you will uncover many other opportunities which may not have been evident originally.

Like the other issues raised in this chapter, asking "Why?" until there are no further answers is a 24-hour-a-day mental activity. It applies to everything we have to deal with, including personal issues. It's not always easy. Jo knows someone who has had a dozen jobs in as many years. He won't ask himself "Why?" five times, because he can't face the possibility that he may be the problem.

So, ask "Why?" until it hurts. When solving problems, and also when planning and setting objectives. It also works at the personal level. For instance, you may set yourself an objective to earn \$100,000 next year. Ask yourself why. Chances are that the money is only one perceived way of achieving your real objectives, whatever they may be.

Five vital Questions

During an audit, Jeff identified that the QC testing laboratory did not have the latest version of the Customer specification.

WHY? *Because the document controller didn't give it to the lab.*

WHY? *Because the specification was never registered with the document controller.*

WHY? *Because the sales person didn't give it to the design team.*

WHY? *Because the design team weren't meeting cross-functionally, as required by the procedure.*

WHY? *Because the procedure defined it as a team responsibility to organise meetings.*

So what appeared to be a simple document control problem was actually a problem related to leadership and accountability.

Technicolour Thinking

It seems logical that, to be a happy and effective member of society and, for that matter, to be successful in business, it pays to always keep an open mind on everything. For anyone to believe that he or she can ever have absolute knowledge of anything is not only arrogant, it is also dangerous. Yet many people persist in judging, rather than understanding; in trying to change other people's values; in believing that they are right and others are wrong.

It seems much better to adopt a mind set that recognises shades of grey (or even technicolour!), i.e.

that sees things in terms of 'fit' rather than right or wrong, and that empathises with those who disagree with us.

Sometimes it's hard to see the colours. A product either meets a specification or it

doesn't. On the face of it that's black or white, right or wrong, yes or no. However, when you think about it, whatever criterion the specification is based on will be a variable with many possible values. The 'spec.' is often only an arbitrary cut-off point, chosen (sometimes poorly) to minimise the risk of error. It is a yes-no simplification of what is really a continuum. Simplifying things for practical purposes is fine, as long as we acknowledge and remember that we are working with a simplified version of the complete story. We challenge you to look closely at what you to believe to be straightforward right/wrong or black/white choices, and we suggest you will find that these are man-made simplifications of what are by nature technicolour situations.

"Americans, it is observed, prefer definite answers. Yes or no. No grays please. In Indonesia there is a word in common use that nicely wires around the need for black and white. Belum is the word and it means 'not quite yet'. A lovely word implying continuing possibility."

Robert Fulghum

Some of you may have heard of the Taguchi loss function, which is relevant to the above argument. If you haven't come across it before, or would like to brush up on it, it is explained very well in Scherkenbach's "Deming's Road to Continual Improvement".⁽⁶⁾

Abundance and Scarcity

Another 'mind track' that troubles a lot of people (especially when talking about relationships with suppliers) is thinking in terms of co-operation rather than competition. Yet, where a win-win co-operative solution is possible, it is almost always superior to a competitive (i.e. win-lose) solution.

A competitive approach engenders an either/or attitude: it is only a small step from win/lose to right/wrong, and closed minds. Competition also leads to a focus on end results, at the expense of process orientation. If the end result of a process is associated with winning or losing (rather than only with winning), the result becomes the only thing that matters. It will be achieved by hook or by crook, and the many losers are likely to include your Customers.

Stephen Covey talks about the ‘abundance mentality’⁽⁷⁾. Our conditioned reflex tends to be the assumption of scarcity - there is not enough to go around - and we can only get what we want by making sure others don’t get it first. In reality, more often than not, there is plenty for everyone. It is quite possible to go through life a winner, without making anybody else lose. However, it does mean that you may need to rethink your definition of ‘winning’.

A basic paradigm of current economic theory is “Unlimited demand for scarce resources”. This tends to talk about the input end of businesses and processes. Covey’s ‘abundance mentality’ has a much larger and more philosophical scope. It talks about processes and outcomes. It’s about recognition, credit, power, profit, prestige. It holds that it is often possible to get these without depriving others of theirs and that there need be no loss to us if others achieve them.

Vision and Purpose

‘Imagineering’ means letting your imagination soar, and then engineering it down to earth. It capitalises on the fact that the subconscious mind cannot tell the difference between a real experience, and one which it believes to be real. This knowledge can be used to help ‘program’ the subconscious mind towards achievement of goals and objectives.

Every day, in all our environments, we are faced with the difference between the way things are and the way you would like them to be. This is our ‘opportunity gap’, as it represents the extent of the opportunity we have for improving things. Now, for any issue in our lives, the current state of affairs is in front of us all the time, and we can make measurements, if necessary, to get a more accurate picture. By frequently, vividly, and in great detail imagining a preferred (even ideal) state of affairs, we are actually programming our subconscious to lead us into doing the things that are necessary to start closing the opportunity gap.

“Everything you can imagine is real”.

Pablo Picasso

This is not a new technique. It is also referred to as Creative Visualisation, and many people in many professions (doctors, lawyers, sportspeople, public speakers, etc) use it successfully. The point here is that imagineering is at its most effective when you stop thinking about it as a tool to be applied to certain projects, and start developing it as a natural, instinctive part of your everyday thought processes.

Imagineering helps us to create visions and direct our minds toward achieving those visions. It helps to give us purpose - regardless of whether we are talking about work or our private lives.

Focus and Leadership

Many of you will have heard of (and even used) Pareto charts. These are simple graphs, usually in the form of a bar chart, which help to sort out priorities. They are based on the principle that, in any situation, you can divide things into a significant few and a relatively trivial many.

"Things which matter most must never be at the mercy of things which matter least."

Goethe

However, these charts are merely a manifestation of what we like to call the *Pareto mentality*, i.e. a mind-set where we constantly and automatically make ourselves spend our greatest efforts on the things that matter most. We all know that the demands on our time and resources always exceed what we have available - economists call this 'the fundamental economic problem'.

Getting permanently into a thinking mode where we continuously and instinctively prioritise according to what matters most can be of great help in optimising the way we use our scarce resources.

The question then arises 'How do we define what matters most?' One way to address this is to think of the things that add the most value, but that's only half an answer: it needs a definition of 'value'. We suggest that the things that add the most value are the things that contribute most to achievement of our vision.

So where does leadership come in? Well, once there is a vision, there will need to be a strategy and practical plans to move towards it. And, real life being what it is, unless leadership is applied to keeping things on track, it is easy to fall into the trap of enthusiastically working away at great-looking projects without ensuring that such projects are part of the overall strategy and contribute to the overall goals.

Thinking about Thinking

‘Thinking about Thinking’ means looking at what you need to accomplish, and then choosing, deliberately, the best thinking tools for the task. Effective process improvement and innovation rely on the ability to generate and utilise ‘Good Ideas’ throughout the improvement process. The same can be said about problem solving. Knowing what thinking approach or what thinking tool to use at any given point allows improvement efforts to be more focussed, makes decision-making easier, speeds up team activities, and can bring creativity into the process, thus giving you a much better chance of finding truly innovative improvements⁽⁸⁾.

Thinking is more than ‘something we just do’. It is a skill that can be learned and improved. Many people believe that ‘clever’ thinking is a gift possessed by only a few people. This is a misconception: anyone can learn to be more creative and to think more productively.

Some of the techniques you might learn to use include Breakthrough Brainstorming, Mindmapping™, DeBono’s Six Thinking Hats™ and Jo’s Four Lenses Model. There are many more and, like all other tools and techniques, there are good ways and bad ways of using them. It pays to learn them properly.⁽⁹⁾

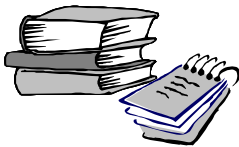
Few men during their lifetime come anywhere near exhausting the resources dwelling within them. There are deep wells of strength that are never used.

Richard E. Byrd

Chapter 22 - Key Points

- To make a real difference in the long term it is not enough to simply do things differently - you first have to think about them differently;
- ‘Mind sets for Quality Thinking’ include:
 - Understanding the diversity of people;
 - Equating continual improvement with continual learning and considering these as a never-ending cycle;
 - Focussing on Processes;
 - Understanding the nature of variation;
 - Recognising waste for what it is and seeing it as an opportunity;

- Taking a very broad view of who and what Customers are;
- Adopting holistic systems thinking;
- Digging deep to the root causes of problems;
- Rejecting black/white thinking and other forms of absolutism;
- Recognising that there is plenty of everything for everyone;
- Using vision and purpose as an anchor for plans and strategies;
- Leadership awareness that helps to focus on the things that matter most;
- Seeing thinking as a skill that can be applied deliberately, with appropriate tools and techniques.



1. *'Quality Thinking - Thinking Quality'*
by Johan Kruithof,
Information Australia, Melbourne, 1993, ISBN 1 86350 112 6

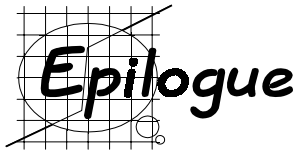
This book is now out of print, but a new version is in the pipeline.
Email books@qualityinsights.com.au if you would like to be notified when it comes out.
2. *'Kaizen - The Key to Japan's competitive Success'*
by Masaaki Imai
Random House, 1986. ISBN 0-394-55186-9
3. As far as we know, this definition of waste was first popularised by Bill Conway. In the last decade, Conway's work has become more accessible through the publication of his book *'The Quality Secret: The right Way to Manage©'* - Conway Quality, Inc, Nashua, 1992, ISBN 0 9631464 0 8.
4. *'Simplicity'*
By Edward de Bono
Viking, 1998. ISBN 0-670-88155-4
5. The idea of the 'Five Whys' is attributed to Taichi Ohno of Toyota.
6. *'The Deming Road to Continual Improvement'*
by William W Scherkenbach
SPC Press, 1991, ISBN 0 945320 10 8

7. *'The Seven Habits of Highly Effective People'*
by Stephen R Covey
Information Australia, 1992. ISBN 1 86350 029 4
8. From: *'Hidden Gold!'*
by Bill Jarrard & Jo Kruithof
QI Publishing Company, 1999. ISBN 0 9577601 1 6
9. To find out more, visit **<http://www.mindwerx.com.au>**

"The paradigm shift that Deming and Juran and Crosby and many others began is not just a revolution in manufacturing. It is a revolution in the human spirit. And if we continue along the road they have laid out, we will find that excellence must permeate every nook and cranny of our lives.

For this reason and many more, I predict that the Total Quality process will be hailed in the twenty-first century as the most important paradigm shift to come out of the twentieth century."

Joel Barker in 'Paradigms'



Epilogue

*“The future is not inevitable. We can influence it,
if we know what we want it to be.”*

Charles Handy

We hope this book has been value for your money. We hope it has explained what has become an unnecessarily contentious issue, and put a few things in their proper perspective for you.

The book is primarily about Quality Management Systems and Quality System Standards. Systems are important: a sound business has sound management systems. They are the inescapable solution when we want to control risk, meet external compliance requirements, ensure our various work practices are properly integrated into the business, and manage due diligence requirements. Standards are important: they are valuable guidelines to ensure process risks are identified, and work is done at an acceptable standard. They become baselines for comparison and assessment.

But systems and standards are not the be-all, end-all. Their full value will not be realised unless they are treated as components of the bigger Quality framework that distinguishes excellent businesses from those that may be left behind to perish. Our aim has been to clarify the Quality Systems/Quality Standards scene, to put it into its proper perspective, and to give you as much ammunition as possible to make being involved in it a value-adding experience for your organisation and its people.

There is a video, now somewhat dated, which introduces Quality Systems and Quality Standards to companies intending to get Quality certification. It is called *“Quality means never having to say you’re sorry”*. This was obviously inspired by the movie ‘Love Story’. Its subtitle was *“Love means never having to say you’re sorry”*. Some people will say that Quality is a bit like love: it is such a basic idea that you can’t define it in terms of other things. And, like love, you either have it or you don’t; ‘good’ and ‘poor’ don’t come into it. When you recognise it, you are satisfied, and usually express that satisfaction with emotions as well as with reason.

Quality is a relationship between Customers and suppliers. In the business of life, we are all each other's Customers and suppliers: What we do and say affects others, and what other people do and say affects us. Quality is a way to think about things; it is a way to treat each other; and it is a way to continually improve everything we touch. Once we understand Quality, we don't need to qualify it with adjectives.

Quality is just that - with a capital 'Q'.

*"Quality doesn't have to be defined.
You understand it without definition, ahead of definition.
Quality is a direct experience independent of
and prior to intellectual abstractions."*

Robert Pirsig

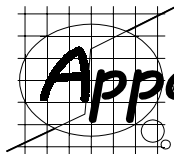
*It's sometimes easier to talk about continual improvement than to do it!
However, we try to practise what we preach, and always look for ways to
improve. If you would like to share your thoughts with us, here's how to
contact us, or find out more about what we do:*

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A graphic featuring a grid with a circle and a diagonal line crossing it, with the word "Appendix" in a stylized font.

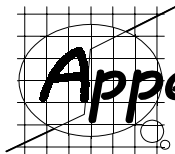
Appendix 1

The ISO 9000 Family

ISO 9000:2000	Quality Management Systems - Fundamentals and Vocabulary
ISO 9001:2000	Quality Management Systems - Requirements
ISO 9004:2000	Quality Management Systems - Guidelines for Performance Improvements
ISO 19011	Guidelines on Quality and/or Environmental Management Systems Auditing - under development at the time of writing (late 2001)
ISO 10005:1995	Quality Management - Guidelines for Quality Plans
ISO 10006:1997	Quality Management - Guidelines to Quality in Project Management
ISO 10007:1995	Quality Management - Guidelines for Configuration Management
ISO/DIS 10012	Quality Assurance Requirements for Measuring Equipment - Part 1: Metrological Confirmation System for Measuring Equipment
ISO 10012-2:1997	Quality Assurance Requirements for Measuring Equipment - Part 2: Guidelines for Control of Measurement of Processes
ISO 10013:1995	Guidelines for developing Quality Manuals
ISO/TR 10014:1998	Guidelines for managing the Economics of Quality
ISO 10015:1999	Quality Management - Guidelines for Training
ISO/TS 16949:1999	Quality Systems - Automotive Suppliers - Particular Requirements for the Application of ISO 9001:1994

“The future for all organisations is in the quality of their goods and services. Quality is where the future lies.”

Donald McDonald, ABC Chairman
The Weekend Australian 13-14 July 1996

A graphic consisting of a grid with a circle and a diagonal line crossing it, with the word 'Appendix 2' written in a stylized font over it.

Appendix 2

The Changes to ISO 9001

*“Progress is impossible without change,
and those who cannot change their minds cannot change anything.”*

George Bernard Shaw

The update to the ISO 9000 series of standards was released late in 2000, after a couple of ‘false starts’ in which the draft documents were published as interim standards.

The process of standards development is a long and tortuous one. The year 2000 release updates the previous versions released in 1994. Our observation is that the initial drafts can be described as both ambitious and rough. The consensus-seeking process of standards development tends to iron out the wrinkles, but also ‘water down’ the requirements. What has emerged from this process with respect to ISO 9001 is a standard that probably describes leading practice of a few years ago.

First, some structural changes...

The most notable change at first reading is that the familiar 20 elements have been dispensed with, and replaced with a grouping of 5 ‘processes’. These are:

- Quality system
- Management responsibility
- Resource management
- Product realization
- Measurement, analysis and improvement

Largely, this is simply a shuffling of the elements into thematic groups, but there are also a few extra requirements. The most significant of these are *continual improvement* and *Customer satisfaction*.

A few other changes have also been made at the structural level, as follows:

- A set of eight Quality Management Principles have been defined. These are very similar to those found in the Baldrige Criteria and the Australian Business Excellence Framework of a number of years ago (see Chapter 7 for a comparison). These Principles form the philosophical foundation for successful application of Quality in the context of the ISO 9001 standard. You can obtain a free document explaining them further from the British Standards Institute site at **www.bsi.org.uk**.
- The supply chain terminology now makes sense (supplier >> organisation >> Customer).
- The structure of the ISO 9000 series has been compacted to essentially four documents:
 - (i) ISO 9000 - encompassing the previous ISO 9000.1-3 and ISO 8402
 - (ii) ISO 9001 - replacing all of the old ISO 9001, 9002 and 9003
 - (iii) ISO 9004 - incorporating ISO 9004.1-3
 - (iv) ISO 19011 - replacing ISO 10001 & 14010-012

A better Approach to Documentation...

If you have worked with the 1994 version, you will recall how each of the twenty elements of that version required a documented procedure, often resulting in a system architecture based on the standard, rather than the organisation's processes. This has changed, and in such a way as to guide people away from 'standards based' systems.

ISO 9001:2000 now mandates that documented procedures address only the six system management aspects: Document control, Records, Internal audit, Nonconformance control, Corrective action and Preventive action.

However, this does not mean that you don't have to have any procedures for the rest of the system! The standard has an expectation that there will be a comprehensive set of procedures for the organisation, of the type, form and extent necessary to ensure the system delivers:

“...consistent products...meeting customer and regulatory requirements...and enhancing customer satisfaction through quality assurance and continual improvement.”

(ISO 9001:2000 Section 3 - Scope)

Typically, organisations achieve this through a combination of procedures, competent people, organisational knowledge, communications and other supporting documentation.

The Devil is in the Detail...

There are many changes throughout the standard, often such that the requirements are simplified (a good example is the section on control of inspection, measuring and test equipment). There are thirteen changes which particularly stand out as having major implications for organisations.

#1: 4.2.2 Quality manual

A description of the interaction of the processes in the business needs to be included in the Quality Manual (a process map would fulfil this requirement). Details are explained in the main text of this book.

#2: 5.1 Management commitment

Management is now also required to communicate, throughout the organisation, the importance of meeting Customer, regulatory and legal requirements. In one sense, this is not a new requirement - regulatory and legal requirements should always have been included in the system. It is now specific, and it is incumbent on management to make it a priority.

#3: 5.2 Customer focus >>> NEW SECTION!

Three things are required here:

1. Determine Customer requirements;
2. Meet these requirements;
3. Through this means, aim to achieve Customer satisfaction.

This goes further than the 1994 version, and it links with the determination of Customer satisfaction, which appears later in the standard.

#4: 5.4.1 Quality objectives

This clarifies and expands the 1994 requirements. The objectives need to be measurable, consistent with the policy, and deployed to relevant functions and levels within the organisation.

#5: 5.4.2 Quality planning

Although inferred previously, it is now explicitly stated that management must ensure that the integrity of the management system is preserved during periods of change.

#6: 5.5.3 Internal communications >>> NEW SECTION!

The communication processes are now included in the system requirements. They don't need to be documented per se, but they do need to be in place between the various levels and functions, regarding the Quality system processes and their effectiveness.

#7: 5.6 Management review

Management review is more definitive than in the 1994 version, but is the same in substance. Its input has been expanded to embrace the enlarged scope of the 2000 version. Review output is now improvement-focussed.

#8: 6.1 Provision of resources

Customer satisfaction is the overriding purpose of the resourcing of processes, in addition to implementing and improving the management system.

#9: 6.2 Human resources

Training is now clearly competency linked, and the understanding by people of their role in the organisation is a component of the training system.

#10: 6.3 Infrastructure >>> NEW SECTION!

This expands on the 'resources' section in 1994 & 2000, and covers...

- ... Buildings, workspace & utilities;
- Equipment & software;
- ... Outsourced services.

#11: 8.2.1 Customer satisfaction >>> NEW SECTION!

Methods for monitoring Customers' perceptions of how well their requirements have been met must be determined and applied.

#12: 8.4 Analysis of data

Data collection and analysis is required, with a view to ensuring suitability, effectiveness and improvement of the management system. This applies especially to:

- » Customer satisfaction;
- » conformance to product requirements;
- » characteristics and trends of processes and products;
- » suppliers' performance.

#13: 8.5.1 Continual improvement >>> NEW SECTION!

Continual improvement of the Quality management system is to be planned and managed. Various Quality system inputs are mandated; Quality policy, objectives, audit results, analysis of data, corrective & preventive action, management review.

In Summary...

- The 1994 version was very prescriptive, basically telling you:

"This is the system you need to get the outcomes."

- ISO 9001:2000 has an outcome focus:

"Develop the system you need to get the outcomes."

*"It is not the strongest of the species that survive,
nor the most intelligent,
but the most responsive to change."*

Charles Darwin

Appendix 3

Application of the Eight Principles to ISO 9001

Reading through the Standard, it is not immediately obvious where the Eight Principles are embedded in ISO 9001. The table on the facing page shows the correlation between the Principles and the various Sections of the Standard as we see it.

We'd appreciate your feedback.

The Principles:

1. Customer-focussed Organisation
2. Leadership
3. Involvement of People
4. Process Approach
5. System Approach to Management
6. Continual Improvement
7. Factual Approach to Decision-making
8. Mutually beneficial Supplier Relationships

*"Standards must be the servant of the system,
not the other way around."*

Something we said earlier in the book

PRINCIPLE: ISO 9001 SECTION:	1	2	3	4	5	6	7	8
4. QUALITY MANAGEMENT SYSTEM								
4.1 General Requirements	•			•	•	•	•	
4.2 Documentation Requirements	•				•	•		
5. MANAGEMENT RESPONSIBILITY								
5.1 Management Commitment	•	•				•		
5.2 Customer Focus	•	•				•		
5.3 Quality policy	•	•	•			•		
5.4 Planning	•	•	•		•	•	•	
5.5 Responsibility, Authority & Commn.	•	•	•		•	•		
5.6 Management Review	•	•	•	•	•	•	•	•
6. RESOURCE MANAGEMENT								
6.1 Provision of Resources	•	•				•		
6.2 Human Resources	•		•			•		
6.3 Infrastructure	•	•		•	•	•		
6.4 Work Environment	•				•	•		
7. PRODUCT REALIZATION								
7.1 Planning for Product Realization	•		•	•	•	•	•	
7.2 Customer-related Processes	•		•	•	•	•		
7.3 Design and Development	•		•	•	•	•		
7.4 Purchasing	•		•	•	•	•		•
7.5 Production and Service Provision	•		•	•	•	•		
7.6 Control of Monitoring & Measuring	•		•	•	•	•	•	
8. MEASUREMENT, ANALYSIS AND IMPROVEMENT								
8.1 General	•					•		
8.2 Monitoring and Measurement	•			•	•	•	•	
8.3 Control of non-conforming Product	•		•	•		•		
8.4 Analysis of Data	•			•		•	•	•
8.5 Improvement	•	•	•	•	•	•	•	•

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